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U.S. Geological Survey

Selected Ground-Water Data for Yucca Mountain Region, Southern Nevada and Eastern California, January 2000–December 2002

Open-File Report 03–387

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By Glenn L. Locke and Richard J. La Camera

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2003

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U.S. GEOLOGICAL SURVEY
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CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
acre	4,047	square meter
acre-foot (acre-ft)	1,233	cubic meter
foot (ft)	0.3048	meter
inch (in.)	2.54	centimeter
mile (mi)	1.609	kilometer
gallon (gal)	0.00378	cubic meter
million gallons (Mgal)	3,785	cubic meter
gallon per minute (gal/min)	0.06309	liter per second
pound per square inch (lb/in ²)	6.895	kilopascal

Sea level: In this report, “sea level” refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929, formerly called “Sea-Level Datum of 1929”), which is derived from a general adjustment of the first-order leveling networks of the United States and Canada.

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ABSTRACT

The U.S. Geological Survey, in support of the U.S. Department of Energy, Yucca Mountain Project, collects, compiles, and summarizes hydrologic data in the Yucca Mountain region. The data are collected to allow assessments of ground-water resources during activities to determine the potential suitability or development of Yucca Mountain for storing high-level nuclear waste.

Data on ground-water levels at 35 wells and a fissure (Devils Hole), ground-water discharge at 5 springs and a flowing well, and total reported ground-water withdrawals within Crater Flat, Jackass Flats, Mercury Valley, and the Amargosa Desert are tabulated from January 2000 through December 2002. Historical data on water levels, discharges, and withdrawals are graphically presented to indicate variations through time.

A statistical summary of ground-water levels at seven wells in Jackass Flats is presented for 1992–2002 to indicate potential effects of ground-water withdrawals associated with U.S. Department of Energy activities near Yucca Mountain. The statistical summary includes the annual number of measurements, maximum, minimum, and median water-level altitudes, and average deviation of measured water-level altitudes compared to selected baseline periods. Baseline periods varied for 1985–93. At six of the seven wells in Jackass Flats, the median water levels for 2002 were slightly higher (0.3–2.4 feet) than for their respective baseline periods. At the remaining

well, data for 2002 was not summarized statistically but median water-level altitude in 2001 was 0.7 foot higher than that in its baseline period.

INTRODUCTION

Activities to determine the potential suitability or development of Yucca Mountain for storing high-level nuclear waste are in progress or planned. The U.S. Department of Energy (DOE) has declared that all facilities and investigations associated with such activities will be operated in a manner that maintains or protects environmental quality, and has established programs to allow assessments of environmental quality. In April 1989, the U.S. Geological Survey (USGS) began a cooperative program with DOE to develop a ground-water-resources monitoring program in the vicinity of Yucca Mountain. The purposes of the monitoring program are to (1) document the historical and current conditions of ground-water resources, (2) detect and document changes in those resources during activities at Yucca Mountain, and (3) provide a basis for analyzing and identifying potential adverse effects on ground-water resources resulting from investigations and activities at Yucca Mountain.

Purpose and Scope

This report presents and summarizes data collected as part of the USGS Environmental-Monitoring Program. Included are data from 2000 through 2002 on ground-water levels at 35 wells and a fissure (Devils Hole), ground-water discharge at 5 springs and a flowing well, and total reported ground-water withdrawals within Crater Flat, Jackass Flats, Mercury Valley, and

Amargosa Desert. Data on ground-water levels, discharges, and withdrawals collected by other agencies (or collected as part of other USGS programs) at the sites are included.

A discussion of ground-water data for Jackass Flats includes a statistical summary of that data to indicate potential effects of withdrawals from wells in Jackass Flats on water levels near Yucca Mountain. Effects of these withdrawals may be detected in Jackass Flats before they are detected elsewhere in the Yucca Mountain region.

This report is the ninth in a series of annual reports as part of the USGS Environmental-Monitoring Program (USGS-EMP). Hereafter, the first eight reports are referred to as previous reports on selected ground-water data for the Yucca Mountain region. The previous reports and the data they contain are:

Report (see references cited)	Data contained
La Camera and Westenburg (1994)	Earliest available data through 1992
Hale and Westenburg (1995)	Data collected in 1993
Westenburg and La Camera (1996)	Data collected in 1994
La Camera and others (1996)	Data collected in 1995
La Camera and Locke (1998)	Data collected in 1996
La Camera and others (1999)	Data collected in 1997
Locke (2001a)	Data collected in 1998
Locke (2001b)	Data collected in 1999

Additional information for sites CF-2, JF-1, JF-2, JF-2a, J-13, J-11, and J-12 is presented by Robison (1984), Robison and others (1988), Gemmell (1990), McKinley and others (1991), O'Brien (1991, 1993), Luckey and others (1993), Boucher (1994), Lobmeyer and others (1995), O'Brien and others (1995), Graves and others (1996), Tucci and others (1996a, 1996b), Graves (1998), Graves and Goemaat (1998), Graves (2000), and Savard (2001).

Acknowledgments

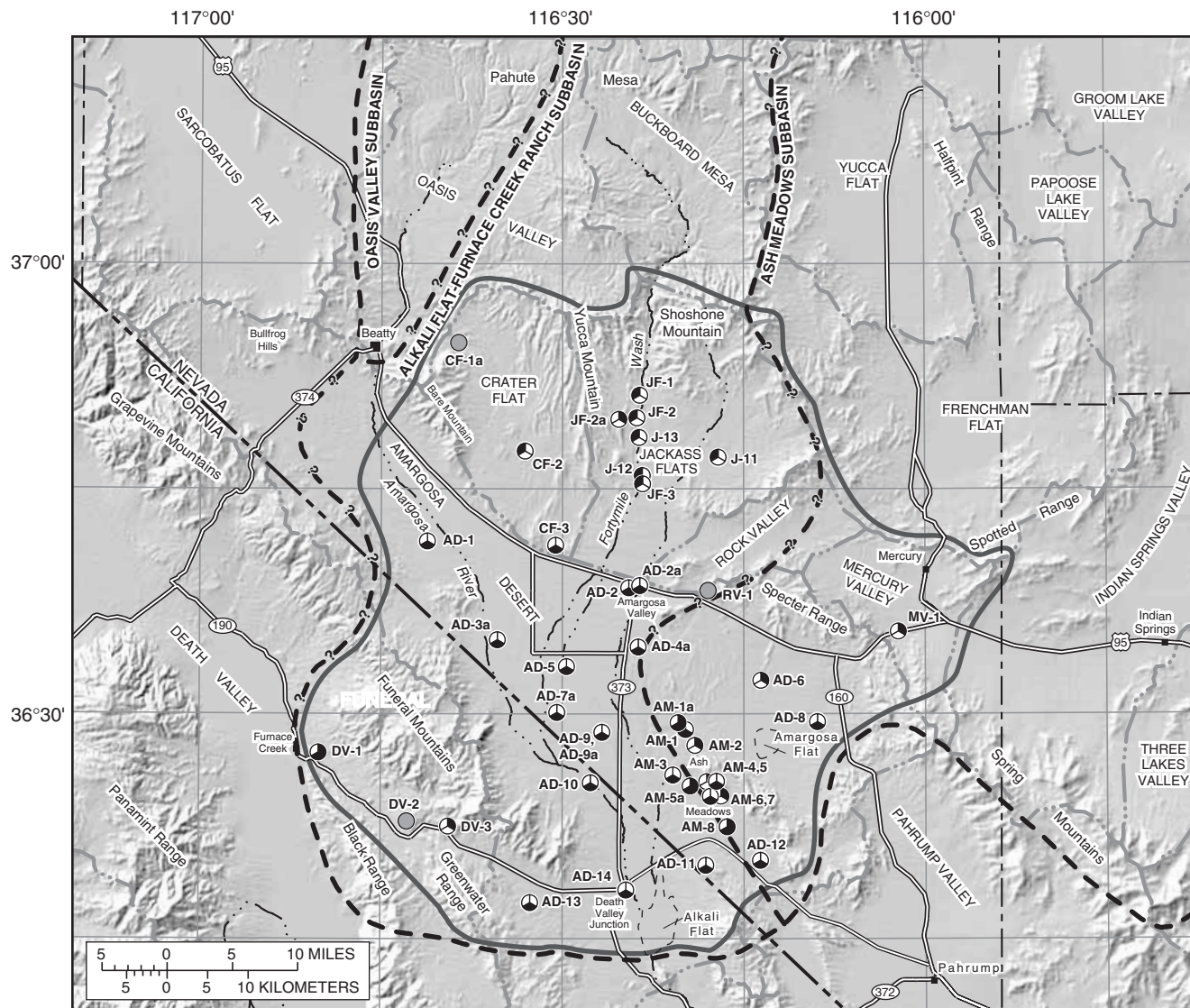
Several organizations and programs contributed to this report. Specifically, data were provided by the Harry Reid Center for Environmental Studies at the University of Nevada, Las Vegas; National Park Service; U.S. Fish and Wildlife Service; Nevada Department of Conservation and Natural Resources, Division of Water Resources; Nevada Department of Transportation; Barrick Bullfrog, Inc.; Bechtel Nevada; Cathedral Gold U.S. Corporation; Daisy Gold Mining Company; Cind-R-Lite Company; U.S. Borax Corporation; U.S. Nevada Gold Search; USGS—Hydrologic Resources Management and Environmental Restoration Programs; and USGS—Yucca Mountain Project Branch studies of saturated-zone site hydrology and saturated-zone regional hydrology.

Additionally, the authors acknowledge the cooperation of the many individual property owners throughout the Amargosa Desert who allowed access to their property and the collection of hydrologic data.

DESCRIPTION OF STUDY AREA

The study area is the Yucca Mountain region of southern Nevada and eastern California (fig. 1). The boundary of the Yucca Mountain region, for purposes of this report, roughly coincides with the northern parts of Crater Flat and Jackass Flats, eastern parts of Rock Valley, Mercury Valley, and Amargosa Desert, Nev., and Death Valley Junction and Furnace Creek, Calif., to the south and west. The region is within the Great Basin, a subdivision of the Basin and Range Physiographic Province (Fenneman, 1931, p. 328).

The study area is in the Death Valley ground-water flow system (Harrill and others, 1988) and, within that flow system, the Alkali Flat–Furnace Creek Ranch and Ash Meadows ground-water subbasins. Each ground-water subbasin is a zone consisting of ground-water recharge areas and flow paths to points of discharge at land surface (Waddell and others, 1984, p. 36; Laczniaik and others, 1996, p. 16 and pl. 1). Boundaries of the subbasins are defined on the basis of the location of recharge areas, discharge areas, low-permeability rocks, hydraulic gradients, and water chemistry. These boundaries are general indicators of restrictions on ground-water movement in the region.



Base from U.S. Geological Survey digital elevation data, 1:250,000, 1987, and digital data, 1:100,000, 1981-89; Universal Transverse Mercator projection, Zone 11. Shaded-relief base from 1:250,000-scale Digital Elevation Model; sun illumination from northwest at 30 degrees above horizon

EXPLANATION

- Study-area boundary
- Ground-water subbasin boundary—From Lacznik and others (1996, pl. 1). Queried where location uncertain
- Hydrographic-area boundary
- Data-collection site**—Site number (table 1) and primary contributing unit are indicated
- AD-6 Carbonate rock
- CF-2 Volcanic rock
- AD-1 Valley fill
- DV-2 Undifferentiated sedimentary rock
- DV-1 Combined carbonate rock and valley fill



Figure 1. Location of data-collection sites in the Yucca Mountain region, southern Nevada and eastern California, 2000–02.

The study area also is subdivided by hydrographic areas¹ (fig. 1). As defined by Rush (1968, p. 4), hydrographic areas generally consist of valleys (topographic lows) extending to their surrounding surface-water drainage divides (topographic highs). Hydrographic areas include Crater Flat, Jackass Flats, and Rock Valley, most of Mercury Valley and Amargosa Desert, and part of Death Valley (Rush, 1968; Harrill and others, 1988, sheet 2).

Alkali Flat–Furnace Creek Ranch Ground-Water Subbasin

Crater Flat and Jackass Flats (which include Yucca Mountain), most of Rock Valley, the west-central part of the Amargosa Desert, and part of Death Valley are in the Alkali Flat–Furnace Creek Ranch ground-water subbasin (fig. 1). Within this subbasin, sources of ground water principally are precipitation and subsurface inflow (Waddell and others, 1984, p. 36; Harrill and others, 1988, sheet 2; Lacznia and others, 1996, table 3). Precipitation occurs on the higher mesas and mountains within the subbasin and along the subbasin's north and northeast mountainous boundaries. Subsurface inflow into the subbasin occurs near Beatty from the Oasis Valley subbasin, near Ash Meadows from the Ash Meadows subbasin, and possibly from Cactus Flat (about 40 mi north of Beatty). Ground water discharges principally as springflow in Death Valley and as evapotranspiration from Alkali Flat and Death Valley. Ground water generally flows to the south, southeast, or southwest and discharges principally in Death Valley and at Alkali Flat (Kilroy, 1991, p. 9–13; Tucci and Burkhardt, 1995, p. 8; Lacznia and others, 1996, pl. 1).

¹The U.S. Geological Survey and Nevada Division of Water Resources delineated formal hydrographic areas in Nevada systematically in the late 1960's for scientific and administrative purposes (Rush, 1968; Cardinalli and others, 1968). The official hydrographic area names, numbers, and geographic boundaries continue to be used in U.S. Geological Survey scientific reports and Division of Water Resources administrative activities. Extensions of hydrographic areas from Nevada into California and selected hydrographic areas in California have been delineated also by Harrill and others (1988, sheet 2).

Ash Meadows Ground-Water Subbasin

Part of Rock Valley, most of Mercury Valley, and the eastern part of the Amargosa Desert are within the Ash Meadows subbasin (fig. 1). The southeastern part of the Amargosa Desert includes the Ash Meadows spring-discharge area. The Ash Meadows spring-discharge area is a gently sloping land containing numerous springs (Dudley and Larson, 1976, p. 5) at the southwestern edge of the subbasin.

In the Ash Meadows ground-water subbasin, sources of ground water principally are precipitation and subsurface inflow (Lacznia and others, 1996, table 3). Precipitation occurs on the higher mountains within the subbasin and along the subbasin's north and northeast mountainous boundaries. Subsurface inflow principally occurs from Railroad Valley and Pahrangat Valley along the basin's north and northeast boundaries (about 100 mi north of Ash Meadows). Ground water discharges principally as springflow and evapotranspiration in the Ash Meadows area and possibly as underflow into the Alkali Flat–Furnace Creek Ranch ground-water subbasin. Ground water in the subbasin generally flows to the south, west, or southwest (Harrill and others, 1988, sheet 2; Lacznia and others, 1996, p. 16–18 and pl. 1).

DATA-COLLECTION SITES

Locations of data-collection sites are shown in figure 1. Information on site identification, site location, site owner, and the types of data contained in this report are listed in table 1 for each site. Information on well construction, source of well-construction data, and contributing lithologic units are listed in table 2. All sites are wells or springs except site AM-4 (Devils Hole), which is an open fissure that intersects the ground-water table. Site AD-9 was found destroyed in January 2001 and was subsequently replaced by site AD-9a.

Site Number

Sites in this report are identified by an alphanumeric number consisting of two parts (fig. 1, table 1). The first part represents the hydrographic area in which the site is located: "CF" represents Crater Flat; "JF" or "J," Jackass Flats; "RV," Rock Valley; "MV," Mercury

Table 1. Index to monitoring sites in Yucca Mountain region, 2000–02

Site number: Sites are grouped by hydrographic area and, within each area, are listed in general north-to-south, then west-to-east order. See text section “Site Number” for further discussion.

U.S. Geological Survey site identification: Unique identification number for sites as stored in files and data bases of U.S. Geological Survey.

Local site number: Alphanumeric number based on location of site within hydrographic areas and rectangular subdivisions of public lands. See text section “Local Site Number” for further discussion.

Owner: Abbreviations listed for sites owned by Federal agencies: BLM, Bureau of Land Management; NPS, National Park Service; DOE, U.S. Department of Energy; USFWS, U.S. Fish and Wildlife Service; USGS, U.S. Geological Survey.

Data type: Type of data included in this report. D, ground-water discharge; L, ground-water level.

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Latitude (degrees, minutes, seconds)	Longitude (degrees, minutes, seconds)		Local site number	Owner	Data type
CF-1a	365445116383901	GEXA Well 3	365442	1163841	229	S12 E48 07ADD1	Rayrock Mines, Inc.	L
CF-2	364732116330701	USW VH-1	364732	1163307	229	S13 E48 27C1	DOE	L
CF-3	364105116302601	Cind-R-Lite Well	364106	1163026	229	S14 E48 36DDD1	Cind-R-Lite Block Company	L
JF-1	365116116233801	UE-25 WT 15	365116	1162338	227A	S12 E50 33A1	DOE	L
JF-2	364945116235001	UE-25 WT 13	364943	1162351	227A	S13 E50 18B1	DOE	L
JF-2a	364938116252102	UE-25p 1 PTH	364938	1162521	227A	S13 E49 14A2	DOE	L
J-13	364828116234001	J-13 WW	364829	1162340	227A	S13 E50 19C1	DOE	L
J-11	364706116170601	J-11 WW	364706	1161706	227A	S13 E51 31B1	DOE	L
J-12	364554116232401	J-12 WW	364554	1162324	227A	S14 E50 06A2	DOE	L
JF-3	364528116232201	JF-3 Well	364528	1162322	227A	S14 E50 06D1	DOE	L
RV-1	363815116175901	TW-5	363815	1161759	226	S15 E50 24A1	DOE	L
MV-1	363530116021401	Army 1 WW	363530	1160214	225	S16 E53 05ADB1	DOE	L
AD-1	364141116351401	NA-6 Well BGMW-10	364131	1164114	230	S14 E47 32DA1	USGS	L
AD-2	363830116241401	Airport Well	363825	1162433	230	S15 E49 24ABB1	Doing, Warren	L
AD-2a	363835116234001	NDOT Well	363835	1162358	230	S15 E50 18CCDB1	NV Dept. of Transportation	L
AD-3a	363521116352501	Davidson Well	363525	1163530	230	S16 E48 05CAB1	Davidson, Robert	L
AD-4a	363428116234701	Cooks East Well	363430	1162345	230	S16 E50 07CABB1	Cook, Lewis C.	L
AD-5	363310116294001	USBLM Well	363325	1162945	230	S16 E49 18DCCA1	BLM	L
AD-6	363213116133800	Tracer Well 3	363213	1161338	230	S16 E51 27BAA3	USGS	L
AD-7a	363009116302702	Blackman Well	363010	1163030	230	S17 E48 01AB3	Naxos Mining Company	L
AD-8	362929116085701	Cherry Patch Well	362930	1160855	230	S17 E52 08CDB1	Clark, Hershel and others	L
AD-9	362848116264201	Gilgans North Well	362850	1162645	230	S17 E49 15BBBB1	Steelman, James C.	L
AD-9a	362835116264102	Amargosa Desert 9a	362837	1162649	230	S17 E49 15BC 2	Gilgan, Michael	L
AD-10	362525116274301	NA-9 Well	362530	1162740	230	026N005E05E001S	USGS	L
AD-11	361954116181201	GS-3 Well	361957	1161752	230	S19 E50 01BBD1	USGS	L
AD-12	362014116133901	GS-1 Well	362021	1161330	230	S18 E51 34CBD1	USGS	L
AD-13	361724116324201	S-1 Well	361720	1163240	230	025N004E21M001S	USGS	L
AD-14	361817116244701	Death Valley Jct Well	361816	1162447	230	025N005E14M001S	Ettie, Lee	L
AM-1	362858116195301	Rogers Spring Well	362855	1161950	230	S17 E50 10CDD1	USFWS	L
AM-1a	362924116203001	Fairbanks Spring	362926	1162028	230	S17 E50 09AD1	USFWS	D
AM-2	362755116190401	Five Springs Well	362755	1161905	230	S17 E50 23BBCA1	USFWS	D,L
AM-3	362555116205301	Garners Well	362555	1162055	230	S17 E50 33CAAB1	Garner, George	L
AM-4	362532116172700	Devils Hole	362532	1161727	230	S17 E50 36DC1	NPS	L
AM-5	362529116171100	Devils Hole Well	362530	1161715	230	S17 E50 36DDC1	USFWS	L
AM-5a	362502116192301	Crystal Pool	362515	1161925	230	S18 E50 03ADBA1	USFWS	D
AM-6	362432116165701	Point of Rocks North Well	362430	1161655	230	S18 E51 07BBBB1	USFWS	L
AM-7	362417116163600	Point of Rocks South Well	362420	1161640	230	S18 E51 07BDB1	USFWS	L
AM-8	362230116162001	Big Spring	362229	1161625	230	S18 E51 19ACB1	USFWS	D
DV-1	362728116501101	Texas Spring	362728	1165011	243	027N001E23BS01S	NPS	D
DV-2	362252116425301	Navel Spring	362252	1164253	243	026N002E13FS01S	U.S. Borax & Chem. Corp.	D
DV-3	362230116392901	Travertine Point 1 Well	362231	1163932	243	026N003E21L001S	U.S. Borax & Chem. Corp.	L

Table 2. Well-completion data at monitoring sites in Yucca Mountain region

Site number: Sites are grouped by hydrographic area and, within each area, are listed in general north-to-south, then west-to-east order. See text section “Site Number” for further discussion.

U.S. Geological Survey site identification: Unique identification number for site as stored in files and data bases of U.S. Geological Survey (USGS).

Accessible well depth: Well depths listed are as reported in sources listed in explanation for **Data source** (see below) or as measured by USGS personnel (noted with ‘s’). See text section “Accessible Well Depth” for further discussion.

Casing diameter at land surface: Outside casing diameter of segment most prominent at land surface; rounded to nearest inch.

Top of open interval: Depth to top part(s) of well that can receive ground water from lithologic interval. Uncased borehole is designated open interval in this table. Open interval may be deeper than accessible well depth, which may reflect original drilled depth. As reported in sources listed in explanation for **Data source** (see below). U, unknown, no data.

Bottom of open interval: Depth to bottom part(s) of well that can receive ground water from lithologic interval. Uncased borehole is designated open interval in this table. Open interval may be deeper than accessible well depth, which may reflect original drilled depth. As reported in sources listed in explanation for **Data source** (see below). U, unknown, no data.

Diameter of open interval: Inside casing diameter; rounded to nearest inch. Hole diameter is listed where no casing is present. U, unknown, no data.

Type of open interval: Description of open interval. P, perforated or slotted casing; S, screened casing, type not known; U, unknown, no data; X, uncased borehole.

Data source: D, Well driller’s log, well-completion report, or Fenix & Scisson, Inc., or Raytheon Services Nevada hole-history data; J, Johnston (1968); M, no source, data not available; O, Owner of well; R, Robison and others (1988); T, Thordarson and others (1967).

Contributing units: Saturated lithologic interval yielding water to well. C, carbonate rock; F, valley fill; S, undifferentiated sedimentary rock; V, volcanic rock. See text section “Contributing Lithologic Units” for further discussion.

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Accessible well depth (feet below land surface)	Casing diameter at land surface (inches)	Open interval				Data source	Contributing units
					Feet below land surface		Diameter (inches)	Type		
					Top	Bottom				
CF-1a	365445116383901	GEXA Well 3	700	7	208	313	6	P	D	S
					513	618	6	P		
					658	700	6	P		
CF-2	364732116330701	USW VH-1	2,501	10	911	912	9	X	R	V
					912	2,501	6	X		
CF-3	364105116302601	Cind-R-Lite Well	460	9	320	460	8	P	D	F
JF-1	365116116233801	UE-25 WT 15	1,360	11	127	130	15	X	D	V
					130	1,360	9	X		
JF-2	364945116235001	UE-25 WT 13	1,160	11	222	224	15	X	D	V
					224	1,150	9	X		
					1,150	1,160	8	X		

Table 2. Well-completion data at monitoring sites in Yucca Mountain region—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Accessible well depth (feet below land surface)	Casing diameter at land surface (inches)	Open interval				Data source	Contributing units
					Feet below land surface		Diameter (inches)	Type		
					Top	Bottom				
JF-2a	364938116252102	UE-25p 1 PTH	5,923	24	4,256 4,279 5,900	4,279 5,900 5,923	10 7 6	X X X	R	C
J-13	364828116234001	J -13 WW	3,488	13	996 1,301 2,690 3,385	1,301 1,386 3,312 3,488	13 11 5 8	P P P X	T	V
J-11	364706116170601	J -11 WW	1,327	13	1,075 1,242	1,095 1,298	12 12	P P	D	V
J-12	364554116232401	J -12 WW	1,139	13	793 887	868 1,139	12 12	P X	D	V
JF-3	364528116232201	JF- 3 Well	1,138	9	735	1,138	8	P	D	V
RV-1	363815116175901	TW- 5	800 s	7	735 800	800 916	6 U	P X	T	S
MV-1	363530116021401	Army 1 WW	1,953	11	800 1,368 1,370 1,684	1,050 1,370 1,684 1,953	11 10 9 7	P X X X	D	C
AD-1	364141116351401	NA-6 Well BGMW-10	960	2	930	940	2	S	D	F
AD-2	363830116241401	Airport Well	750 s	14	360	777	14	P	D	F
AD-2a	363835116234001	NDOT Well	495	9	395	495	8	P	D	F
AD-3a	363521116352501	Davidson Well	240 s	16	120	250	15	P	D	F
AD-4a	363428116234701	Cooks East Well	269 s	13	147 238	213 286	12 12	P P	D	F
AD-5	363310116294001	USBLM Well	348 s	12	U	U	U	U	M	F
AD-6	363213116133800	Tracer Well 3	678 s	9	620	807	6	X	J	C

Table 2. Well-completion data at monitoring sites in Yucca Mountain region—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Accessible well depth (feet below land surface)	Casing diameter at land surface (inches)	Open interval			Data source	Contributing units	
					Feet below land surface		Diameter (inches)			Type
					Top	Bottom				
AD-7a	363009116302702	Blackman Well	210	7	U	U	U	U	O	F
AD-8	362929116085701	Cherry Patch Well	215 s	15	U	U	U	U	M	F
AD-9	362848116264201	Gilgans North Well	396 s	13	60 154 245	90 244 396	12 12 15	P P X	D	F
AD-9a	362835116264102	Amargosa Desert 9a	415	10	55 200	200 515	10 10	P X	D	F
AD-10	362525116274301	NA-9 Well	1,090	2	1,063	1,066	2	S	D	F
AD-11	361954116181201	GS-3 Well	2,000	2	1,969	1,979	2	S	D	F
AD-12	362014116133901	GS-1 Well	1,580	2	1,549	1,559	2	S	D	F
AD-13	361724116324201	S-1 Well	2,000	2	1,969	1,979	2	S	D	F
AD-14	361817116244701	Death Valley Jct Well	225 s	12	160	200	12	S	D	F
AM-1	362858116195301	Rogers Spring Well	202 s	16	100 240	240 420	12 16	P X	D	F
AM-2	362755116190401	Five Springs Well	123 s	14	0 100	100 140	13 14	P X	D	C
AM-3	362555116205301	Garners Well	202 s	9	140	180	8	P	O	F
AM-5	362529116171100	Devils Hole Well	200 s	16	48	248	16	P	D	F
AM-6	362432116165701	Point of Rocks North Well	500	16	139	500	16	P	D	F
AM-7	362417116163600	Point of Rocks South Well	586 s	14	132 468	467 818	14 U	P X	D	C
DV-3	362230116392901	Travertine Point 1 Well	650 s	5	100	970	5	X	D	C

Valley; “AD” or “AM,” Amargosa Desert; and “DV,” Death Valley. “AM” further indicates that the site is in the Ash Meadows spring-discharge area. The second part of the number represents the relative location of the site within the hydrographic area (or Ash Meadows spring-discharge area). Within each hydrographic area, sites generally are numbered sequentially in a north-to-south, then west-to-east order. Sites added subsequent to the initial numbering also are numbered as indicated above or are assigned the number of a nearby site and given the suffix “a.” Exceptions are sites J-13, J-11, and J-12, which are or were intended water-supply wells and were previously numbered by Raytheon Services Nevada; they were not renumbered for this report. The sequence of sites in table 1 is followed throughout the report.

USGS Site Identification

Sites are identified by the standard USGS identification number, which is based on an initial determination of latitude and longitude of the site. The site identification (table 1) serves as a unique identification number in files and data bases of the USGS and indicates the approximate geographic location of each site. The identification consists of 15 digits: the first 6 digits denote the degrees, minutes, and seconds of latitude; the next 7 digits denote degrees, minutes, and seconds of longitude; and the last 2 digits (assigned sequentially) identify the site within a 1-second grid. For example, site 363530116021401 is at approximately 36°35'30" latitude and 116°02'14" longitude, and it is the first site recorded in that 1-second grid. Even if a more precise latitude and longitude are subsequently determined, the site identification number remains unchanged. Latitude and longitude shown for a site (referenced to the North American Datum of 1927), therefore, are the most accurate locators.

Local Site Number

The local site number (table 1) is based on an index of hydrographic areas (Rush, 1968; Harrill and others, 1988) and on the rectangular subdivision of public lands referenced to the Mount Diablo base line and meridian for sites in Nevada, or San Bernardino base line and meridian for sites in California (U.S.

Geological Survey, 1986a, b). Numbering conventions differ depending on whether a site is in Nevada or California.

For sites in Nevada, each local number consists of four units separated by spaces. The first unit is the hydrographic area number; the second unit is the township, preceded by an N or S to indicate location north or south of the base line; the third unit is the range, preceded by an E to indicate location east of the meridian; and the fourth unit consists of the section number and letters designating the quarter section, quarter-quarter section and so on (A, B, C, and D, indicate the northeast, northwest, southwest, and southeast quarters, respectively), followed by a number indicating the sequence in which the well was recorded. For example, site 230 S18 E51 34CBD1 is in the Amargosa Desert (hydrographic area 230) and is the first site recorded in the southeast quarter of the northwest quarter of the southwest quarter of section 34, township 18 south, range 51 east, Mount Diablo base line and meridian.

For sites in California, the local number consists of the hydrographic area number followed by three spaces. The next 10 characters indicate the township and location north or south of the baseline, the range and location east or west of the meridian, and the section number. The letter following the section number designates the 40-acre subdivision of the section in which the site is located (U.S. Geological Survey, 1996). The final letter indicates that the location is referenced to the San Bernardino (S) base line and meridian and is preceded by a 3-digit number (for wells) or an “S” and 2-digit number (for springs) indicating the sequence in which the site was recorded. For example, site 230 025N005E14M001S is a well in the Amargosa Desert (hydrographic area 230) and is the first site recorded in the 40-acre subdivision designated M of section 14, township 25 north, range 5 east, San Bernardino base line and meridian.

Data Type

Data type (table 1) identifies the types of data (water level and discharge) presented for each site. At the back of this report, ground-water-level data are in tables 5–7 and ground-water-discharge data are in table 8.

Accessible Well Depth

Accessible well depth (table 2) is the measurable depth to the bottom of the well. The drilled depth may be greater than the accessible depth of the well due to modifications of the well, obstructions, or accumulation of sediment at the bottom of the well. The depth of each well was measured by the USGS (depths noted with “s”) or was reported by other data sources. The USGS measured depths less than 1,000 ft by “sounding” the bottom of the well with weighted steel or electric tapes.

Open Interval

Depths to tops and bottoms of open intervals (table 2) indicate parts of the well that are open to the surrounding lithologic intervals and may allow water to enter the well. An uncased section of a well is considered an open interval in this report. Type of open interval (table 2) is a physical description of the open intervals of a borehole. The types of openings are perforated or slotted casing, screened casing, and open hole with no casing.

Data Source

Data sources (table 2) are organizations or publications from which information on depth of well, open interval, and type of opening was obtained. Drillers' logs or records are filed with the Nevada Division of Water Resources (NDWR) or maintained by the well owner; Fenix and Scisson, Inc., and Raytheon Services Nevada were contractors for DOE and maintained a summary of well-construction information for selected wells in the area. Publications are USGS reports written for DOE as part of cooperative studies associated with weapons-testing hydrology programs (Thordarson and others, 1967; Johnston, 1968) or Yucca Mountain site-characterization studies (Robison and others, 1988).

Contributing Units

Contributing units (table 2) are the principal saturated lithologic intervals at the site that yield water to the well. For purposes of this report, contributing units

are one or a combination of four general types. Wells characterized as having a contributing unit of carbonate or volcanic rock are wells with open intervals in those consolidated rocks. In and near the Amargosa Desert, wells characterized as having a contributing unit of valley fill are those with open intervals in unconsolidated valley-filling materials, including lakebed deposits. Wells with open intervals in clastic rock (including argillite, limy sandstones and siltstones, or silty, sandy, and shaley limestones) are characterized as having a contributing unit of undifferentiated sedimentary rock.

Robison and others (1988) describe the contributing units at sites CF-2, JF-1, JF-2, JF-2a, and J-13. McKinley and others (1991) describe the contributing units for sites J-11, J-12, MV-1, AD-4a, AD-5, AD-6, AD-8, and AM-4. Thordarson and others (1967) describe the contributing unit at site RV-1. Dudley and Larson (1976) describe the contributing units for sites AM-2, AM-5, and AM-7. Contributing-unit data are not available from listed data sources for some wells; the contributing units indicated for those wells are derived from drillers' logs or well-completion reports that describe geology in the boreholes, open intervals in the wells, and measurements of depth to water.

Contributing units for springs indicate sources of water discharged at the sites. Winograd and Thordarson (1975, p. C75–C97) describe sources of discharge at sites AM-1a, AM-5a, AM-8, and DV-1. McKinley and others (1991) describe the source of discharge at site DV-2.

DATA-COLLECTION PROCEDURES AND EQUIPMENT

Water-level and discharge data for monitoring sites were compiled from available sources, from USGS files and data bases, and from measurements made by USGS-EMP personnel. Withdrawal data for selected areas were compiled solely on the basis of availability. Data-collection procedures and equipment used by USGS-EMP are described in detail; procedures and equipment used by other sources of data are described briefly.

Water-Level Data

Water-level measurements in table 5 are completed periodically using electric tapes, steel tapes, or other procedures and equipment. Water levels included in this report also are measured continually using pressure sensors.

Land-Surface Altitude and Height of Measurement Point

Land-surface altitude and height of the measurement point (MP) above (or depth below) land surface are included with periodically collected data (table 5). Land-surface altitude is a representative altitude of land at or near the site (referenced to the National Geodetic Vertical Datum of 1929). An exception is site AM-4 (Devils Hole), where the land-surface altitude represents the altitude of the measurement point (a bolt fastened to the south wall of the fissure) that is not referenced to land surface. Land surveys were made by USGS personnel at the monitoring sites to determine the altitudes of land surface or the MP.

Heights of MP's for sites in Amargosa Desert (except AM-4), Death Valley, and Rock Valley were determined by measuring the distance of the MP above (or depth below) a representative point on the land surface at or near the well. The altitude of the MP was determined during the USGS land survey, and land-surface altitude was computed by adding or subtracting the MP height from the surveyed MP altitude.

At sites JF-1, JF-2, JF-2a, and J-13, USGS land surveys verified previously reported land-surface and MP altitudes. At sites CF-2, J-11, and J-12, USGS land surveys verified the previously reported land-surface altitudes and determined the MP altitude by adding the height of the MP to the land-surface altitude. At sites CF-1a and MV-1, USGS land surveys determined the land surface and MP altitudes. The height of the MP is the difference between the MP altitude and land-surface altitude.

Measurement Method, Status, and Source

Measurement method and site status are included with periodic data to aid in evaluating water levels. Sources of water-level data also are shown with periodic data to indicate originating organizations of the data.

Water-Level Measurements

Depth to water, in feet below land surface, is computed as the measured depth to water below the MP minus the height of the MP above land surface at the well. The altitude of water surface is the depth to water below land surface subtracted from the altitude of land surface and is reported to the nearest tenth of a foot. At site AM-4, the depth to water represents depth below the MP and the altitude is the depth to water subtracted from the altitude of the bolt. Periodic and continual water-level measurements were made or calculated using procedures and equipment in the following subsections.

Calibrated Electric Tape

USGS-EMP personnel used two calibrated 1,000-foot electric tapes (YMP-11, YMP-13) and two calibrated 2,000-foot electric tapes (PRT-3, PRT-4) from 2000 through 2002. Each tape was marked with a unique identifier for quality-assurance purposes. The electric tapes were calibrated using steel tapes. At depths less than 500 ft, the electric tapes were calibrated using a steel tape maintained by EMP personnel and identified as the 500-foot reference steel tape #1. At depths greater than 500 ft, the electric tapes were calibrated using the USGS Site-Characterization Project (USGS-SCP) 2,600-foot calibrated steel tape (Chain #3) and the USGS-SCP 2,800-foot reference steel tape. In July 2001, ownership of the reference tape was transferred to the Harry Reid Center and the tape was referred to as the HRC 2,800-foot reference steel tape. Selected calibration data for the electric tapes are summarized in table 3. Calibration data for tapes YMP-11, YMP-13, and PRT-3 presented in Locke (2001b, table 3) are not repeated in this report.

The corrections to the USGS-SCP and the HRC calibrated steel tapes account for mechanical stretch and thermal expansion of the tape. No corrections were necessary for the USGS-EMP 500-foot reference steel tape #1 because mechanical stretch and thermal expansion of the tape are considered negligible at the depths to water measured. The correction factors for the electric tapes are the difference between the corrected steel-tape measurement and the uncorrected electric-tape measurement.

A summary of correction factors applied to USGS-EMP electric tapes from 2000 through 2002 is listed in table 4. The correction factor is used to adjust

Table 3. Electric-tape calibration data used to derive correction factors, 2000–02.
Calibration data used to derive correction factors but not listed herein are presented in the previous report on selected ground-water data for Yucca Mountain region

[Abbreviations: HRC REF, Harry Reid Center for Environmental Studies, 2,800-foot reference steel tape; USGS-EMP ST1, U.S. Geological Survey Environmental-Monitoring Program 500-foot reference steel tape #1; YMP-11, YMP-13, 1,000-foot electric tapes; PRT-3, PRT-4, 2,000-foot electric tapes; USGS-SCP ST3, U.S. Geological Survey Site-Characterization Project Chain #3 (steel tape); USGS-SCP REF, U.S. Geological Survey Site-Characterization Project 2,800-foot reference steel tape]

Date	Site number (see fig. 1)	Tape used	Feet below measuring point	Feet below measuring point	Correction (feet)
			Uncorrected (feet)	Corrected (feet)	
08-08-00	AD-5	USGS-EMP ST1	128.34	128.34	0.00
		YMP-11	128.35	128.34	-0.01
		YMP-13	128.37	128.34	-0.03
	AD-13	USGS-EMP ST1	372.84	372.84	0.00
		YMP-11	372.86	372.84	-0.02
		YMP-13	372.92	372.84	-0.08
	CF-2	USGS-SCP ST3	605.12	605.08	-0.04
		YMP-11	605.18	605.08	-0.10
		YMP-13	605.22	605.08	-0.14
		PRT-3	605.36	605.08	-0.28
	J-12	USGS-SCP ST3	744.00	743.97	-0.03
		YMP-11	744.04	743.97	-0.07
		YMP-13	744.12	743.97	-0.15
		PRT-3	744.30	743.97	-0.33
	JF-2	USGS-SCP ST3	995.79	995.76	-0.03
		PRT-3	996.61	995.76	-0.85
	JF-1	USGS-SCP ST3	1,161.69	1,161.67	-0.02
		PRT-3	1,162.20	1,161.67	-0.53
01-03-01	AD-5	USGS-EMP ST1	128.58	128.58	0.00
		YMP-11	128.61	128.58	-0.03
		YMP-13	128.60	128.58	-0.02
	AD-13	USGS-EMP ST1	373.33	373.33	0.00
		YMP-11	373.42	373.33	-0.09
		YMP-13	373.40	373.33	-0.07
	CF-2	USGS-SCP REF	605.24	605.17	-0.07
		YMP-11	605.43	605.17	-0.26
		YMP-13	605.36	605.17	-0.19
		PRT-3	605.49	605.17	-0.32

Table 3. Electric-tape calibration data used to derive correction factors, 2000–02—
Continued

Date	Site number (see fig. 1)	Tape used	Feet below measuring point	Feet below measuring point	Correction (feet)
			Uncorrected (feet)	Corrected (feet)	
01-04-01	J-12	USGS-SCP REF	743.82	743.75	-0.07
		YMP-11	744.00	743.75	-0.25
		YMP-13	743.95	743.75	-0.20
		PRT-3	744.12	743.75	-0.37
	JF-2	USGS-SCP REF	995.82	995.74	-0.08
		PRT-3	996.62	995.74	-0.88
	JF-1	USGS-SCP REF	1,161.79	1,161.70	-0.09
		PRT-3	1,162.28	1,161.70	-0.58
06-19-01	J-12	USGS-SCP REF	743.92	743.85	-0.07
		YMP-11	744.10	743.85	-0.25
		YMP-13	744.01	743.85	-0.16
		PRT-3	744.17	743.85	-0.32
	JF-2	USGS-SCP REF	995.66	995.58	-0.08
		PRT-3	996.54	995.58	-0.96
	JF-1	USGS-SCP REF	1,161.62	1,161.53	-0.09
		PRT-3	1,162.08	1,161.53	-0.55
06-20-01	AD-5	USGS-EMP ST1	128.23	128.23	0.00
		YMP-11	128.25	128.23	-0.02
		YMP-13	128.27	128.23	-0.04
	AD-13	USGS-EMP ST1	373.14	373.14	0.00
		YMP-11	373.26	373.14	-0.12
		YMP-13	373.23	373.14	-0.09
	CF-2	USGS-SCP REF	605.14	605.07	-0.07
		YMP-11	605.32	605.07	-0.25
		YMP-13	605.26	605.07	-0.19
		PRT-3	605.39	605.07	-0.32
01-16-02	J-12	HRC REF	743.83	743.76	-0.07
		YMP-11	744.09	743.76	-0.33
		YMP-13	744.00	743.76	-0.24
		PRT-4	744.27	743.76	-0.51
	J-11	HRC REF	1,042.42	1,042.34	-0.08
		PRT-3	1,042.96	1,042.34	-0.62
		PRT-4	1,042.99	1,042.34	-0.65
	JF-1	HRC REF	1,161.39	1,161.30	-0.09
		PRT-4	1,162.08	1,161.30	-0.78

Table 3. Electric-tape calibration data used to derive correction factors, 2000–02—
Continued

Date	Site number (see fig. 1)	Tape used	Feet below measuring point	Feet below measuring point	Correction (feet)	
			Uncorrected (feet)	Corrected (feet)		
01-17-02	AD-5	USGS-EMP ST1	129.05	129.05	0.00	
		YMP-11	129.09	129.05	-0.04	
		YMP-13	129.10	129.05	-0.05	
	AD-13	USGS-EMP ST1	372.85	372.85	0.00	
		YMP-11	372.95	372.85	-0.10	
		YMP-13	372.94	372.85	-0.09	
	CF-2	HRC REF	605.13	605.06	-0.07	
		YMP-11	605.30	605.06	-0.24	
		YMP-13	605.22	605.06	-0.16	
		PRT-4	605.48	605.06	-0.42	
	08-13-02	CF-2	HRC REF	604.97	604.90	-0.07
			YMP-13	605.05	604.90	-0.15
PRT-4			605.45	604.90	-0.55	
08-14-02	J-12	HRC REF	743.71	743.64	-0.07	
		YMP-13	743.88	743.64	-0.24	
		PRT-4	744.36	743.64	-0.72	
	J-11	HRC REF	1,042.42	1,042.34	-0.08	
		PRT-4	1,043.36	1,042.34	-1.02	
	JF-1	HRC REF	1,161.35	1,161.26	-0.09	
	PRT-4	1,162.38	1,161.26	-1.12		
08-15-02	AD-13	USGS-EMP ST1	368.12	368.12	0.00	
		YMP-13	368.22	368.12	-0.10	
08-16-02	AD-5	USGS-EMP ST1	130.23	130.23	0.00	
		YMP-13	130.27	130.23	-0.04	
01-17-03	AD-5	USGS-EMP ST1	131.30	131.30	0.00	
		YMP-13	131.33	131.30	-0.03	
01-21-03	J-11	HRC REF	1,042.33	1,042.25	-0.08	
		PRT#4	1,043.36	1,042.25	-1.11	
01-22-03	J-12	HRC REF	743.79	743.72	-0.07	
		YMP-13	743.96	743.72	-0.24	
		PRT-4	744.52	743.72	-0.80	
	JF-2a	HRC REF	1,185.29	1,185.22	-0.07	
		PRT-4	1,186.41	1,185.22	-1.19	
	01-23-03	CF-2	HRC REF	605.05	604.98	-0.07
YMP-13			605.14	604.98	-0.16	
PRT-4			605.60	604.98	-0.62	

Table 4. Applied correction factors for electric tapes used, 2000–02. The correction factors are based on calibration data listed in table 3 of this report and data listed in table 4 of the previous report on selected ground-water data for Yucca Mountain region

[--, no measurements made for given depth-to-water range during period specified]

Tape	Start	End	0-299 feet	300-499 feet	500-699 feet	700-899 feet	900-1,099 feet	1,100-1,299 feet
PRT-3	01-12-00	08-09-00	--	--	-0.32	-0.32	-0.65 to -0.86	-0.55
PRT-3	08-10-00	01-04-01	--	--	-0.32	-0.32	-0.86	-0.55
PRT-3	01-05-01	06-19-01	--	--	-0.32	-0.32	-0.91	-0.55
PRT-3	06-20-01	01-16-02	--	--	-0.32	-0.32	-0.91 to -0.62	-0.55
PRT-4	01-17-02	08-14-02	--	--	-0.42 to -0.55	-0.51 to -0.72	-0.65 to -1.02	-0.78 to -1.12
PRT-4	08-15-02	01-23-03	--	--	-0.58	-0.76	-1.06	-1.16
YMP-11	01-12-00	08-09-00	-0.02	-0.04	-0.10	-0.08	--	--
YMP-11	08-10-00	01-04-01	-0.02	-0.04	-0.10 to -0.26	-0.08 to -0.25	--	--
YMP-11	01-05-01	01-17-02	-0.03	-0.09	-0.25	-0.28	--	--
YMP-13	01-12-00	01-04-01	-0.05	-0.05	-0.16	-0.16	--	--
YMP-13	01-05-01	01-17-02	-0.06	-0.06	-0.17	-0.19	--	--
YMP-13	01-18-02	01-23-03	-0.06	-0.06	-0.19	-0.19	--	--

depth-to-water measurements made with an electric tape to account for mechanical stretch, incorrect markings, and changes to the physical condition of the tape. The measurement period represents the time during which the correction factors were applied. Applied correction factors from 2000 through 2002 commonly are averages of individual correction factors; individual correction factors include discrete corrections listed in table 3 of this report and applied factors listed in table 4 of previous reports on selected ground-water data for the Yucca Mountain region.

Applied correction factors for specific depth ranges are averages based on measurement periods in which all individual correction factors and previously reported correction factors within that range are within 0.05 ft of the average. For example, the -0.17 ft applied correction factor for tape YMP-13 (in the depth range 500–699 ft) for the period January 5, 2001–January 17,

2002, is an average of the individual correction factors -0.19 ft and -0.16 ft (table 3) and the previously reported correction factor of -0.16 (table 4). When an applied correction factor for a depth range cannot be derived accordingly, presumably due to an indeterminate change in the physical condition of a tape, the applied correction factor for a measurement period is calculated from a linear proration of factors determined for successive calibrations. Linear prorations of correction factors are applied by time and are represented by listing the beginning and ending factors separated by “to” in table 4.

Applied correction factors also may be combined across depth intervals when they are within 0.05 ft. For example, the -0.06 ft applied correction factor for tape YMP-13 (in both the 0–299 ft and the 300–499 ft depth ranges) for the period January 5, 2001–January 17, 2002, is a combined average of the -0.05 ft and -0.08 ft

applied factors determined for each depth range and is within 0.05 ft of all individual correction factors -0.04, -0.05, -0.09, -0.09 (table 3) and previously reported correction factors -0.05 and -0.05 (table 4).

Calibrated electric tapes were used at wells when frequent repetitive measurements were required due to fluctuating water levels, depths to water were greater than 500 ft, or wet conditions inside a well prevented measurements using chalked steel tapes. Electric-tape measurements are made by lowering the end of the tape to the water surface until a signal is activated when a probe on the end of the tape contacts the water. The tape is raised and lowered slowly until the exact point of contact is located. While holding the tape on the MP, the depth to water below the MP is read from markings on the tape. At least two measurements are made during each site visit, and supplemental measurements are made if those two measured depths differ by more than 0.05 ft. If supplemental measurements indicate the difference is due to rapidly changing water levels, the measured depths and appropriate site status are recorded. Measurements using calibrated electric tapes are indicated by method "V" in table 5.

An example calculation of depth to water below land surface for a site, using USGS-EMP calibrated electric tape YMP-13, is shown below:

Location: JF-3	
Date: April 24, 2000	Time: 1530
<u>Tape ID: YMP-13</u>	<u>Correction factor: -0.16 ft</u>
	(for depths from 700 to 899 ft)
Depth below MP	712.38 ft
Correction factor	<u>-0.16 ft</u>
Corrected depth below MP	712.22 ft
Height of MP above land surface	<u>-2.27 ft</u>
Depth to water below land surface	709.95 ft

Harry Reid Center personnel made water-level measurements using calibrated electric tapes at sites CF-2, JF-1, JF-2, JF-2a, J-13, J-11, and J-12. These data-collection activities are governed by formal, unpublished technical procedures associated with the Yucca Mountain Office of Repository Development.

Steel Tape

For the period 2000–02, USGS-EMP personnel used two uniquely marked 300-ft steel tapes (ST-5, ST-7) and two 500-ft steel tapes (ST-8, ST-9) for measurements. These steel tapes were checked against the

USGS-EMP 500-ft reference steel tape #1 at several depths to water to verify their accuracy. No corrections to the measurements made with these steel tapes were needed.

General procedures for using the steel tapes are to (1) chalk the bottom section of the tape, (2) lower the tape into the well until part of the chalked section is below the water surface, (3) hold the tape on the MP and record the "hold" reading, (4) raise the end of the tape to the surface, observing the "cut" (top of the wet part of the chalked tape), (5) record the reading of the cut, (6) calculate the depth to water below the MP by subtracting the "cut" reading from the "hold" reading, and (7) calculate the depth to water below land surface by subtracting the height of the MP above land surface from the depth to water below MP. USGS-EMP personnel make a minimum of two measurements during each site visit to verify the initial measurement. Supplemental measurements are made if the two measured depths differ by more than 0.05 ft. If supplemental measurements indicate the difference is due to fluctuating water levels, the measured depths and appropriate site status are recorded. Measurements using steel tapes are indicated by method "S" in table 5.

USGS-SCP personnel made water-level measurements using calibrated steel tapes at sites CF-2, JF-1, JF-2, JF-2a, J-13, J-11, and J-12. Descriptions of the steel tapes, applicable corrections, and procedures used by USGS-SCP for making steel-tape measurements are given by Robison and others (1988, p. 6–11), Gemmell (1990, p. 8–12), O'Brien (1991, p. 8–13), O'Brien and others (1995, p. 4–7), Graves and others, (1996, p. 5–10), Tucci and others (1996a, p. 5–8; 1996b, p. 5–8), Graves (1998, p. 5–8), Graves and Goemaat (1998, p. 5–11), Graves (2000, p. 8–11), and Savard (2001, p. 8–13). USGS-SCP steel-tape measurements were compiled from information provided by USGS-SCP (C.S. Savard, U.S. Geological Survey, written communications., 2000, 2001). Corrected depth-below-MP measurements were provided by USGS-SCP personnel and converted to depth below land surface by USGS-EMP personnel by subtracting the height of the MP above land surface.

Pressure Sensor

Two sites, JF-3 and AD-6 (fig. 1, table 1), are instrumented by USGS-EMP to continually record ground-water level, atmospheric pressure, and battery voltage at 15-minute intervals. Instrumentation

includes a vented pressure sensor installed below the water surface, a barometer, and a data logger. Recorded data are processed to produce data on continual depth to water, atmospheric pressure, battery voltage, and daily average depth to water.

The pressure sensors at sites JF-3 and AD-6 transmit data to the data logger in pounds per square inch, which varies with the height of the water above the sensor. The general steps for installing and calibrating pressure sensors and processing pressure-sensor data are as follows:

1. Depth to water below MP is measured with a calibrated steel or electric tape and recorded on a field sheet. Depth to water below MP is used for pressure-sensor calibration, rather than depth to water below land surface, because a fixed point of reference is required.
2. The pressure-sensor cable is connected to a data logger and the sensor is lowered down the well until a substantial change in readings indicates the water surface has been reached.
3. The sensor is lowered to a set point and the pressure-sensor readings are recorded after the sensor equilibrates. The set-point depth of the sensor is determined by adding the depth-to-water measurement to the depth at which the sensor is installed below the water surface. For example, if the depth to water is 710 ft below the MP and the sensor is installed 5 ft below the water surface, the set-point depth is 715 ft. The sensor cable is marked or tagged at the MP. This mark or tag is used for making measurements when the pressure sensor is raised or lowered.
4. Following installation, the sensor is calibrated for a range of depths that spans the anticipated range of water-level fluctuation. Water-level fluctuations (differing depths to water below the MP) are simulated by raising and lowering the pressure sensor. Raising the sensor 1 ft above the set point will decrease the amount of submergence of the pressure sensor by 1 ft, thereby simulating a 1 ft increase in depth to water. For example, if the depth to water is 710 ft below the MP (step 1) and the sensor is raised 1 ft, the simulated depth to water below the MP would be 711 ft ($710 + 1 = 711$ ft). Lowering the sensor 1 ft below the set point will increase the amount of submergence of the pressure sensor by 1 ft, thereby simulating a 1 ft decrease in depth to water. If the depth to water is 710 ft below the MP and the sensor is lowered 1 ft, the simulated depth to water below the MP would be 709 ft ($710 - 1 = 709$ ft).
5. Upon completion of pressure-sensor calibration, the sensor is returned to the set point and the time and pressure readings from the data logger are recorded on the field sheet. Another water-level measurement is made with a calibrated steel or electric tape and recorded to check for fluctuation of the water level during installation or calibration of the sensor.
6. Data recorded while calibrating the sensor are used to develop a regression equation to convert pressure readings to water level below MP. The pressure readings from the data logger and corresponding simulated depths below the MP are regressed using pressure (in pounds per square inch) as the independent variable and depth below the MP (in feet) as the dependent variable.

The applicable period for utilizing a particular regression equation (to convert pressure readings to depth to water below the MP) usually corresponds with calibrations at the beginning and ending of that period. In some cases, however, the applicable period for a regression equation does not correspond with successive calibrations; a period is selected that minimizes differences between reference measurements made during site visits and computed water levels at dates intermediate to the two calibrations.

Water-level measurements are made with a calibrated steel or electric tape when a continual monitoring site is visited. The data logger records the pressure-sensor reading at the time of the measurement. The reading is converted to depth to water using the established regression equation and recorded on a field sheet as computed water level. The steel tape or electric tape water-level measurement is used as a reference measurement and is compared to the computed value. Any difference between the reference measurement and computed value is applied as a correction to the continual record by linearly prorating the difference with time between consecutive visits to account for drift in pressure-sensor output.

Data are retrieved from the data logger using a portable computer, transferred to the USGS National Water-Information System (NWIS), and processed using data-base programs. The pressure-sensor data are stored in the data base and converted to depths below land surface. Daily average values are computed from the continual data and stored in the data base. Daily average depth-to-water values are used to compute daily average water-level altitudes, which also are stored in the data base.

Site JF-2 was instrumented to continually collect water-level data by individuals associated with the Harry Reid Center in 2001. Those data are collected, processed, and reviewed by personnel in partnership with another program and can be obtained from the principal investigator for that program.

Pressure-Sensor System at Site JF-3

Instrumentation has been installed at JF-3 since May 28, 1992, to continually collect water-level data every 15 minutes. The pressure sensor used to collect data for the first part of 2000 was first installed on February 4, 1997, and recalibrated every year. The sensor was calibrated on February 1, 2000, and a new regression equation was developed: depth to water below land surface (ft) = $(-2.326 \times \text{pressure reading}) + 714.152$ (ft). The coefficient of determination of the regression equation was 1.0. The equation was based on 11 points between pressure transducer and tape-down measurements. Pressure readings stored in the data base from February 3, 1999, to June 6, 2000, were converted to depth below land surface using this equation to minimize differences between reference measurements and computed water levels. Differences between measurements made with calibrated electric

tapes and computed water levels, based on conversion of pressure readings during that period, ranged from 0.01 ft (February 3, 1999) to -0.08 ft (May 8, 2000).

On January 24, 2001, the sensor was recalibrated and a new regression equation was developed: depth to water below land surface (ft) = $(-2.338 \times \text{pressure reading}) + 714.012$ (ft). The coefficient of determination of the regression equation was 1.0. The equation was based on 12 points between pressure transducer and tape-down measurements. This equation was used from June 6, 2000, to April 18, 2001, thereby minimizing corrections to computed water levels. Differences between measurements made with calibrated electric tapes and computed water levels ranged from -0.01 ft (January 24, 2001) to 0.14 ft (September 21, 2000). The pressure sensor failed on April 18, 2001.

On May 16, 2001, the sensor was replaced and a new regression equation was developed: depth to water below land surface (ft) = $(-2.326 \times \text{pressure reading}) + 715.207$ (ft). The coefficient of determination of the regression equation was 1.0. The equation was based on 12 points between pressure transducer and tape-down measurements. This equation was used from May 16 to November 26, 2001, thereby minimizing corrections to computed water levels. Differences between measurements made with calibrated electric tapes and computed water levels ranged from -0.02 ft (July 20, 2001) to 0.05 ft (October 10, 2001).

On January 15, 2002, the sensor was recalibrated and a new regression equation was developed: depth to water below land surface (ft) = $(-2.353 \times \text{pressure reading}) + 715.386$ (ft). The coefficient of determination of the regression equation was 1.0. The equation was based on 12 points between pressure transducer and tape-down measurements. This equation was used from November 26, 2001, to January 15, 2002, thereby minimizing corrections to computed water levels. Differences between measurements made with calibrated electric tapes and computed water levels ranged from -0.05 ft (November 26, 2001) to -0.01 ft (January 15, 2002).

On January 15, 2003, the sensor was recalibrated and a new regression equation was developed: depth to water below land surface (ft) = $(-2.323 \times \text{pressure reading}) + 715.301$ (ft). The coefficient of determination of the regression equation was 1.0. The equation was based on 11 points between pressure transducer and tape-down measurements. This equation was used from January 15, 2002, to December 31, 2002, thereby minimizing corrections to computed water levels. Dif-

ferences between measurements made with calibrated electric tapes and computed water levels ranged from -0.05 ft (June 19, 2002) to 0.01 ft (December 5, 2002).

Depth-to-water measurements made with calibrated electric tapes for 2000–02 ranged from 709.64 ft (November 9, 2000, and October 9, 2002) to 710.28 ft (February 1, 2000) below land surface (table 5). Daily average water levels for 2000–02 ranged from 709.30 ft (February 6, 2001, and December 16 and 17, 2002) to 710.36 ft (September 24, 2000) below land surface (table 6). The daily average water levels during 2000 ranged from 709.53 ft (March 5) to 710.36 ft (September 24) below land surface. Daily average water levels during 2001 ranged from 709.30 ft (February 6) to 710.20 ft (December 16) below land surface. The daily average water levels during 2002 ranged from 709.30 ft (December 16 and 17) to 710.23 ft (February 10) below land surface.

Pressure-Sensor System at Site AD-6

Instrumentation has been installed at AD-6 since July 29, 1992, to continually collect water-level data every 15 minutes. The pressure sensor collecting data in 2000 was first installed on February 6, 1997, and recalibrated every year. The sensor was calibrated on February 18, 2000, and a new regression equation was developed: depth to water below land surface (ft) = $(-2.322 \times \text{pressure reading}) + 46.676$ (ft). The coefficient of determination of the regression equation was 1.0. The equation was based on nine points between pressure transducer and tape-down measurements. Pressure readings stored in the data base from January 1 to December 4, 2000, were converted to depth below land surface using this equation to minimize differences between reference measurements and computed water levels. Differences between measurements made with steel tapes and computed water levels ranged from -0.01 ft (September 21) to 0.02 ft (October 10). No usable data were collected during December 4–31, 2000, due to intermittent pressure-sensor failures.

On March 26, 2001, the pressure sensor was found completely inoperable and no usable data were collected during January 1–March 25, 2001. A new sensor was installed on April 3, 2001, but it too failed. Yet another sensor was installed on May 10, 2001. It was calibrated on May 11, 2001, and a regression equation was developed: depth to water below land surface (ft) = $(-2.346 \times \text{pressure reading}) + 48.948$ (ft). The coefficient of determination of the regression equation

was 1.0. The equation was based on 15 points between pressure transducer and tape-down measurements. Pressure readings stored in the data base from May 10, 2001, to January 15, 2002, were converted to depth below land surface using this equation to minimize differences between reference measurements and computed water levels. Differences between measurements made with steel tapes and computed water levels ranged from -0.02 ft (May 11) to 0.02 ft (November 15).

On January 15, 2002, the sensor was recalibrated and a new regression equation was developed: depth to water below land surface (ft) = $(-2.316 \times \text{pressure reading}) + 48.948$ (ft). The coefficient of determination of the regression equation was 1.0. The equation was based on 17 points between pressure transducer and tape-down measurements. This equation was used from January 15, 2002, to September 10, 2002, thereby minimizing corrections to computed water levels. Differences between measurements made with steel tapes and computed water levels ranged from -0.02 ft (June 19) to 0.02 ft (September 10).

On January 15, 2003, the sensor was recalibrated and a new regression equation was developed: depth to water below land surface (ft) = $(-2.330 \times \text{pressure reading}) + 48.912$ (ft). The coefficient of determination of the regression equation was 1.0. The equation was based on 13 points between pressure transducer and tape-down measurements. This equation was used from September 10, 2002, to December 31, 2002, thereby minimizing corrections to computed water levels. The differences between measurements made with steel tapes and computed water levels ranged from -0.01 ft (October 10 and December 12) to 0.00 ft (September 10 and November 6).

Depth-to-water measurements made with steel tapes during the period 2000 through 2002 ranged from 41.58 ft (February 7, 2001) to 41.90 ft (December 7, 2001) below land surface (table 5). Daily average water levels during this period ranged from 41.51 ft (March 5, 2000) to 42.00 ft (November 11, 2002) below land surface (table 7). The daily average water levels during 2000 ranged from 41.51 ft (March 5) to 41.88 ft (November 12) below land surface. The daily average water levels during 2001 ranged from 41.60 ft (June 2) to 41.98 ft (December 16) below land surface. The daily average water levels during 2002 ranged from 41.60 ft (April 15) to 42.00 ft (November 11) below land surface.

Other

Water-level measurements were made with various electric tapes by the U.S. Fish and Wildlife Service (USFWS) at sites AM-1, AM-5, AM-6, and AM-7 and by NDWR at site AD-7a; these measurements are listed with method "T" in table 5. Water-level measurements also were reported by a private organization at site AD-1 and by the National Park Service (NPS) at site AM-4. These measurements are listed with method "R" in table 5.

Ground-Water Discharge Data

Measurements of ground-water discharge were made and compiled for five springs and one flowing well (AM-2). Four of the sites, AM-1a, AM-2, AM-5a, and AM-8, are in the Ash Meadows spring-discharge area of the Amargosa Desert and the other two sites, DV-1 and DV-2, are in Death Valley. Discharge measurements were made by NPS, USFWS, and USGS-EMP personnel. Periodic and monthly mean discharge data were determined by the use of current meters, flumes, and volumetric techniques.

The most commonly used method for measuring discharge was the vertical-axis current meter, indicated by a "C" in table 8. This method is used to determine the average velocity of a partial section within a channel cross section. The average velocity within the partial section times the area of the partial section equals the discharge of that section. The summation of the discharges for all the partial sections is the total discharge in the channel. This method is described in more detail by Buchanan and Somers (1969).

Some discharge values were determined by measuring the depth of water inside a flume, indicated by an "F" in table 8. The depth, or stage, is compared to an applicable stage-discharge relation for the flume to determine discharge. This method was used for site AM-1a. Determining discharge by the use of flumes is further described by Kilpatrick and Schneider (1983). Where an instrument has been installed to continually record stage in a flume, mean discharges can be computed for specific periods. This method is indicated by a "Z" in table 8 and was used for site DV-1, where monthly mean discharge (reported for the 15th of the month) was computed on the basis of daily data collected by NPS.

The volumetric method, indicated by a "V" in table 8, was used for measuring ground-water discharge from sites AM-2 and DV-2. A container was used to collect all discharge from the site while a stopwatch was used to determine the amount of time the discharge was collected. The container was positioned to collect the discharge and the stopwatch was started simultaneously. The container was removed, before it was overfilled, and the stopwatch was stopped simultaneously. The volume collected and elapsed time were determined; the discharge rate is the volume collected divided by the time. This procedure was repeated three times and an average rate was computed for each site visit.

The accuracy of the methods is directly related to the operational conditions of the equipment used and to the environmental conditions in which the equipment operated. Discharge values are reported to two significant figures. For the period 2000–02, discharge was determined by all methods and results ranged from 0.89 gal/min at site DV-2 to 3,300 gal/min at site AM-5a (table 8).

Ground-Water Withdrawal Data

Estimated ground-water withdrawals from wells for the period 2000–02 are listed in table 9 by hydrographic area within the Alkali Flat–Furnace Creek Ranch and the Ash Meadows ground-water subbasins (fig. 1). Total ground-water withdrawal was determined for the Amargosa Desert, Crater Flat, Jackass Flats, and Mercury Valley hydrographic areas. The Amargosa Desert spans both subbasins and is further subdivided into two areas within the Ash Meadows ground-water subbasin.

Withdrawals were estimated from compiled data provided by public agencies including DOE, USGS, and NDWR. Estimated annual ground-water withdrawals are based solely on available data; consequently, in tables and figures, years during which no withdrawals from a specific area are indicated may reflect the unavailability of existing data rather than an estimate of zero for withdrawals. Likewise, years during which withdrawals from a specific area are indicated may underestimate withdrawals when existing data were unavailable for some wells.

Withdrawals from Alkali Flat–Furnace Creek Ranch Ground-Water Subbasin

Withdrawals from the Amargosa Desert hydrographic area within the Alkali Flat–Furnace Creek Ranch ground-water subbasin were recompiled from ground-water pumpage inventories made by NDWR. The pumpage inventories for the entire Amargosa Desert during 2000 through 2002 include estimated withdrawals for irrigation, mining (withdrawals from one well in the Amargosa Desert during 2002 that supplemented water supplies in Beatty were included in the mining category), quasi-municipal and commercial, other (wildlife), and domestic uses. All reported withdrawals for mining use are from the Alkali Flat–Furnace Creek Ranch ground-water subbasin. Almost all reported withdrawals for irrigation (99.9 percent or greater of total withdrawals in the Amargosa Desert) and quasi-municipal and commercial uses (about 99.8 percent of total withdrawals in the Amargosa Desert) also are from the Alkali Flat–Furnace Creek Ranch ground-water subbasin for the period 2000–02. For the same period, reported domestic use is based on the number and location of wells drilled for domestic purposes, as stored in data bases maintained by NDWR (Robert Coache, Nevada Division of Water Resources, oral commun., 2003); about 85 percent of total reported domestic use in the Amargosa Desert is from the Alkali Flat–Furnace Creek Ranch ground-water subbasin.

Withdrawals from Crater Flat were determined from totalizing flowmeters at Gexa Well 4 (about 1.6 mi northeast of site CF-1a), well Daisy PW-2 (about 1.8 mi northeast of site CF-1a), site CF-2, and site CF-3 during 2000 through 2002. Withdrawal data for Gexa Well 4, well Daisy PW-2 and CF-3 are from NDWR and withdrawal data for CF-2 are from DOE. Data on withdrawals for well USW VH-2 (about 1.5 mi northwest of site CF-2) were not available, although ground water is known to have been pumped from that well between 2000 and 2002.

Withdrawals from Jackass Flats were determined from totalizing flowmeters at sites J-13 and J-12. Withdrawals at these sites were recompiled from flowmeter readings provided by Bechtel Nevada as part of the USGS Hydrologic Resources Management Program (U.S. Geological Survey, 2003).

Withdrawals from Rock Valley are considered negligible. The valley mostly is within the Nevada Test Site, which limits public access and use. Within the valley, no known DOE water supply wells exist so no

pumpage is reported by DOE, and only one well that is not pumped (site RV-1) is present in standardized USGS or DOE data bases.

Withdrawals from Ash Meadows Ground-Water Subbasin

Withdrawals from Mercury Valley were recompiled from flowmeter readings provided by Bechtel Nevada for site MV-1 as part of the USGS Hydrologic Resources Management Program (U.S. Geological Survey, 2003).

The Amargosa Desert within the Ash Meadows ground-water subbasin has been divided into two parts to provide information on withdrawals in the immediate vicinity of the environmentally sensitive Ash Meadows area; they are identified in table 9 and figure 11 (at back of report) as the Amargosa Desert (excluding Ash Meadows area) and the Amargosa Desert (Ash Meadows area). No withdrawals were reported for mining use from these two areas of the Amargosa Desert. During 2000 through 2002, withdrawals for irrigation or quasi-municipal uses in the Amargosa Desert (excluding Ash Meadows area) include withdrawals from three wells located in T. 17 S., R. 52 E. Also during this period, withdrawals for quasi-municipal, commercial, and other (wildlife) uses from the Amargosa Desert (Ash Meadows area) include withdrawals from two to three wells located in T. 18 S., R. 50 E.; withdrawals decreased by 10 acre-ft in 2002 due to an absence of pumping from one of three wells. Withdrawals for domestic use from the two areas of the Amargosa Desert within this subbasin were about 13 and 2 percent, respectively, of total reported domestic use in the entire Amargosa Desert hydrographic area during 2000 through 2002; estimates of domestic use are based on the number and location of wells drilled for domestic purposes (as stored in data bases maintained by NDWR).

Quality Assurance

Stringent quality assurance is required for all work pertaining to Yucca Mountain studies to establish adequate confidence in the reliability of data collection, processing, and reporting. In the context of this data-collection program, quality assurance is defined as all planned or systematic actions designed to provide data and records of a desired quality. A variety of quality-

control procedures, which are the operational techniques and activities used to meet the required quality objectives, have been implemented.

The numerous management and administrative procedures that control processing, record keeping, and reporting of data by USGS-EMP are not detailed in this report. Commonly, data such as location, date and time of determinations, and field measurements are recorded onsite. Those data are reviewed for completeness and accuracy, stored in project files and data bases, and are subsequently included in publications by the USGS. Following publication, data are stored in a comprehensive record-keeping facility maintained by contractors for DOE.

In addition to standard USGS practices and the procedures previously described, formal unpublished technical procedures associated with the Yucca Mountain Office of Repository Development have been developed for the collection of water-level and discharge data. Those technical procedures include equipment tests and calibrations and measurement techniques to ensure that necessary and expected precision and accuracy are attained. The principal technical procedures that control the collection of data by project personnel are listed in La Camera and Westenburg (1994, p. 17).

PRESENTATION OF GROUND-WATER DATA

Tables included in this report usually list only 2000 through 2002 ground-water data. Exceptions are tables 3, 4, 5, and 10; tables 3 and 4 include data from 2003 used to determine correction factors for electric-tape measurements made during 2000-02, table 5 includes 1964-67 data for site AD-9a, and table 10 includes a summary of historical water-level measurements at monitoring sites in Jackass Flats. Below is a description of the content of the tables 5-10 and figures 2-13 presented at the back of this report.

Tables 5-9 list ground-water data that have been collected and compiled in the Yucca Mountain region as part of this study. These tables are at the back of this report.

Pumping water from or injecting water into a well or nearby well may result in short-term variations in water levels that differ from long-term or sustained ground-water levels. Observations about such activities (noted by field personnel during site visits) and corre-

sponding water levels, which may represent short-term conditions, are recorded under "site status" in table 5. Data which may reflect short-term conditions at a site, however, are excluded from the figures showing variations in water-levels through time. Observed differences among measurements made by personnel associated with various sources could result from differing accuracies of equipment utilized, inaccurate readings of equipment or reporting of measurements, changes in personnel making measurements, or any combination of those circumstances.

Table 5 lists periodic measurements of depth to water and water-level altitude at 36 sites (including a flowing well) from 2000 through 2002; an exception is 1964-67 data for site AD-9a that were not previously compiled as part of this study. Periodic data are from manual onsite measurements of depth to water. Data collected by other agencies or programs are subject to revision upon further review by that agency or program.

Figures 2-5 show water levels listed in this report and previous reports on selected ground-water data for the Yucca Mountain region. Data for wells with primary contributing units of carbonate rock, volcanic rock, valley fill, and undifferentiated sedimentary rock are presented.

Tables 6 and 7 list daily average water levels at sites JF-3 and AD-6, respectively, from 2000 through 2002. The daily average water levels are computed from continual water levels recorded by instrumentation at 15-minute intervals.

Figure 6 shows daily average water-level altitude and depth to water at sites JF-3 and AD-6. Daily averages are calculated on the basis of continually collected data listed in tables 6 and 7 of this report and in previous reports on selected ground-water data for the Yucca Mountain region. Data are presented from 1992 through 2002.

Table 8 lists periodic measurements of ground-water discharge at six sites from 2000 through 2002. Discharge measured at site AM-2 represents a combination of flow directly through slotted casing at land surface and leakage from the casing's annular space. Data for site DV-1 reported with data source "NPS" represent monthly average discharge collected from instrumentation operated by the NPS. Discharge data collected by other agencies or programs are subject to revision upon further review by that agency or program.

Figure 7 shows measurements of ground-water discharge at sites AM-1a, AM-5a, and AM-8 through 2002, as listed in this and previous reports on selected ground-water data for the Yucca Mountain region.

Figures 8 and 9 show measurements of ground-water discharge through 2002 at sites AM-2 and DV-2, and DV-1, respectively, listed in this and previous reports on selected ground-water data for the Yucca Mountain region. Periodic USGS measurements for 1990–92 that were tabulated by La Camera and Westenberg (1994, table 5) have been revised to reflect water previously unaccounted for at site DV-1.

Table 9 shows estimates of annual ground-water withdrawals from wells in the Yucca Mountain region from 2000 through 2002. Estimated annual ground-water withdrawals are based solely on available data. Information on withdrawals provided by other agencies or programs are subject to revision upon further review by that agency or program. Ground-water withdrawals, in millions of gallons and in acre-feet, from water-supply wells are grouped by ground-water subbasin and totaled by hydrographic area (or part of a hydrographic area) from 2000 through 2002.

Figures 10 and 11 show estimates of annual ground-water withdrawals listed in this and previous reports on selected ground-water data for the Yucca Mountain region. Shown are withdrawals for areas with available data within the Alkali Flat–Furnace Creek Ranch and Ash Meadows ground-water subbasins, respectively, through 2002. In each hydrographic area, ground water may have been withdrawn in years for which no estimates are available and thus no bars are shown. Total bar height equals the approximate sum of withdrawals from all areas within the subbasin for given year.

DISCUSSION OF GROUND-WATER LEVELS AND GROUND-WATER WITHDRAWALS IN JACKASS FLATS

Ground water is withdrawn from Jackass Flats (fig. 1) to support several DOE activities; if those withdrawals affect ground-water levels, the effects may be detected in Jackass Flats before they are detected elsewhere within the Yucca Mountain region. Changes in water-level altitudes at a particular site through time are described in order of increasing distance away from water-supply wells J-13 and J-12.

Figure 12 shows water-level altitudes for seven wells in Jackass Flats and estimated annual ground-water withdrawals in Jackass Flats from 1983 through 2002. Prior to 1983, available data on ground-water withdrawals in Jackass Flats generally represent only the withdrawals from well J-12 rather than total withdrawals from Jackass Flats. For greater consistency and comparability of data on water-level altitudes, water levels in wells J-13, J-12, and JF-3 that may have been affected by pumping or recent pumping of the well (water-level measurements associated with site status “P” or “R”), and may therefore reflect short-term conditions, are excluded from figure 12.

Water-level altitudes presented are based on periodic measurements or daily average water levels (when continual data recorded by instrumentation were available for more than half a year). Water-level data for all sites, prior to 1985, are based on periodic measurements made during site visits (and not daily averages). In addition, the data for sites JF-1, J-13, J-11, and J-12 since 1985, for site JF-2 since 1994, for site JF-2a since 1997, and for site JF-3 prior to May 1992 also are based on periodic measurements made during site visits. Daily average water levels from the USGS-SCP (R.P. Graves and J.M. Gemmell, U.S. Geological Survey, written commun., 1995–98) are shown in figure 12 for site JF-2 for 1985–93 and for site JF-2a for 1985–97. Continual data collection at site JF-2 was discontinued by USGS-SCP personnel in June 1994 and only periodic water levels are shown following December 1993. Continual data collection at site JF-2a was discontinued in October 1997 and only periodic water levels are shown following October 1997.

Ground-water withdrawals in Jackass Flats during 2000 through 2002 consisted of combined pumpage from water-supply wells J-13 and J-12, both of which penetrate volcanic rock. Withdrawals from wells J-13 and J-12 during 2000 were about 16.3 Mgal and 12.9 Mgal, respectively, during 2001 were about 27.6 Mgal and 8.6 Mgal, and during 2002 were about 10.2 Mgal and 7.5 Mgal.

Total ground-water withdrawals from Jackass Flats were about 29.2 Mgal in 2000, 36.2 Mgal in 2001, and 17.7 Mgal in 2002. The 7.0 Mgal increase in withdrawals from 2000 to 2001 is the first increase in withdrawals since 1996. The median withdrawal for Jackass Flats from 1983 to 1991 was about 52 Mgal (La Camera and Westenberg, 1994, p. 30). Ground-

water withdrawals in Jackass Flats increased from 38.9 Mgal in 1992 to 127.4 Mgal in 1996, and then generally (except for 2001) decreased to 17.7 Mgal in 2002.

Table 10 contains selected statistics for water-level altitudes in Jackass Flats. Data for wells JF-1, JF-2, JF-2a, J-13, J-11, J-12, and JF-3 are summarized for the selected baseline periods and for subsequent calendar years through 2002. Only one measurement was available for site JF-2 in 2002 and therefore no statistics were determined for this year. The table shows the number of measurements; minimum, maximum, and median water-level altitude; and the average deviation of measured water-levels from the median water level for each period.

To minimize effects of variability in measurement frequency on median water-level altitudes calculated for the period prior to 1992, the selection of a baseline period for each site was based on (1) the maximum number of consecutive years for which water-level measurements are available and (2) consecutive years containing similar frequencies of water-level measurements. For consistency, the baseline period selected at instrumented wells JF-2 and JF-2a was the period following installation of continual recorders. The baseline period for JF-3 was based solely on the availability of daily average water levels from the continual data recorder, which was installed in May 1992. These baseline periods are the standard to which following years are compared; such comparisons are shown in figure 13.

Median water-level altitudes (table 10) indicate a statistically representative ground-water level for a particular time. Median water-level measurements are listed because the calculated median is less affected by a few high or low values than the arithmetic mean. When more than half a year of continual data at a site were available (recorded hourly or more frequently by instrumentation), the median daily average water level is listed.

The average deviation indicates the dispersion of individual measurements about the median; it provides an indication of how precisely the median approximates a typical water-level altitude during the period. The average deviation equals the sum of the absolute differences between individual measurements and the median, divided by the number of individual measurements. This measure of dispersion was selected rather

than standard deviation because it can be used to describe dispersion about a median value rather than dispersion about an arithmetic mean.

Figure 13 shows the median water-level altitudes and the average deviation of the water levels for wells JF-1, JF-2, JF-2a, JF-3, J-11, J-12, and J-13 for baseline periods and for subsequent years through 2002. Median annual ground-water withdrawal in Jackass Flats for 1983–91 and estimated annual withdrawals for subsequent years through 2002 also are included in figure 13. Selected information presented in the figure is summarized in the following discussion.

Median water-level altitude in water-supply well J-13 for the baseline period is 2,390.0 ft above sea level. Median water-level altitude in well J-13 was 2,390.2 ft in 2000, and 2,390.4 ft in 2001 and 2002. Median water-level altitude in well J-13 increased 0.4 ft from 1999 to 2002. The 0.2 ft increase in median water-level altitude between the baseline period and 2000 is equal to the apparent precision of the median for the baseline period (as indicated by the average deviation for 1989–91). The 0.4 ft increase in median water-level altitude between the baseline period and 2001 or 2002 is greater than apparent precision of the median for the baseline period (0.2 ft). Ground-water withdrawals from well J-13 decreased from 27.3 Mgal in 1999 to 16.3 Mgal in 2000, increased to 27.6 Mgal in 2001, and then decreased to 10.2 Mgal in 2002.

Median water-level altitude in water-supply well J-12 (about 3.0 mi south of well J-13) for the baseline period is 2,388.3 ft. Median water-level altitude in well J-12 increased to 2,388.4 ft in 2000; 2,388.5 ft in 2001; and 2,388.6 ft in 2002. Median water-level altitude in well J-12 increased 0.3 ft from 1999 to 2002. The 0.1 ft increase in median water-level altitude between the baseline period and 2000 is equal to the apparent precision of the median for the baseline period (as indicated by the average deviation for 1990–91). The 0.2 ft and 0.3 ft increases in median water-level altitudes between the baseline period, and 2001 and 2002, respectively, are greater than apparent precision (0.1 ft) of the median for the baseline period. Ground-water withdrawals from well J-12 increased from 5.7 Mgal in 1999 to 12.9 Mgal in 2000, decreased to 8.6 Mgal in 2001, and then decreased to 7.5 Mgal in 2002.

Median water-level altitude in well JF-3 (about 0.5 mi south of water-supply well J-12) for the baseline period is 2,388.3 ft. Median water-level altitude in well JF-3 increased to 2,388.4 ft in 2000, 2,388.5 ft in 2001,

and 2,388.6 ft in 2002. Median water-level altitude in well JF-3 increased 0.4 ft from 1999 to 2002. The 0.1 ft increase in median water-level altitude between the baseline period and 2000 is within the apparent precision of the median for the baseline period (as indicated by the average deviation for 1992–93). The 0.2 ft and 0.3 ft increases in median water-level altitude between the baseline period, and 2001 and 2002, respectively, are greater than apparent precision (0.1 ft) of the median for the baseline period.

At wells J-13, J-12, and JF-3 (which penetrate volcanic rock and also are at or near principal points of ground-water withdrawals from volcanic rock) the 2002 median water-level altitudes are greater (0.3 ft to 0.4 ft) than their baseline medians. The combined ground-water withdrawals from wells J-12 and J-13 decreased from 33.0 Mgal in 1999 to 29.2 Mgal in 2000, increased to 36.2 Mgal in 2001, and then decreased to 17.7 Mgal in 2002. Median water-level altitudes in the three wells usually corresponded with increases or decreases in withdrawals, although changes in water levels may be due to changes in recharge to the ground-water system rather than withdrawals (Fenelon and Moreo, 2002, p. 54–58).

Median water-level altitude in well JF-2 is 2,392.1 ft for the baseline period. The site is about 1.4 mi north of water-supply well J-13 and penetrates volcanic rock. Median water-level altitudes in well JF-2 for 2000 and 2001 were 2,392.7 ft and 2,392.8 ft, respectively, which are 0.6 ft and 0.7 ft higher than the median for the baseline period. No statistics were determined for well JF-2 in 2002 because only one measurement was available during that year. Median water-level altitude increased 0.3 ft from 1999 to 2001. The average deviation of water levels during the baseline period from 1985 to 1991 (0.3 ft) is less than the change in the median water levels during 2000 or 2001.

Median water-level altitude in well JF-2a for the baseline period is 2,468.6 ft. The site is about 2.0 mi northwest of supply well J-13 and penetrates carbonate rock. The median water-level altitude in well JF-2a increased to 2,470.8 ft in 2000 and to 2,471.0 ft in 2001 and 2002. Median water-level altitude increased 0.8 ft from 1999 to 2002. Median water-level altitude in well JF-2a has risen 0.1–0.3 ft/yr since 1992, except between 2001 and 2002 when median water levels remained stable. The increases in median water level between the baseline period, and 2000 or 2001 and 2002 exceed the apparent precision (0.4 ft) of the median water-level altitude for the baseline period.

Median water-level altitude in well JF-1 is 2,392.5 ft for the baseline period. The site is 3.2 mi north of water-supply well J-13 and penetrates volcanic rock. Median water-level altitudes in well JF-1 increased to 2,392.8 ft in 2000, 2,393.0 ft in 2001, and 2,393.2 ft in 2002. Median water-level altitude increased 0.5 ft from 1999 to 2002. The 0.3 ft, 0.5 ft, and 0.7 ft changes in median water-level altitudes between the baseline period and 2000, 2001, and 2002, respectively, are greater than the apparent precision (0.2 ft) of the median for the baseline period.

Median water-level altitude in well J-11 is 2,402.2 ft for the baseline period. The site is 6.3 mi east of water-supply well J-13 and penetrates volcanic rock. Median water-level altitude in well J-11 decreased to 2,402.3 ft in 2000, increased to 2,402.6 ft in 2001, and subsequently decreased to 2,402.5 ft in 2002. Overall, the median water-level altitude increased 0.1 ft from 1999 to 2002. The 0.1-foot increase in median water-level altitude between the baseline period and 2000 is equal to the apparent precision of the median for the baseline period (0.1 ft). The 0.4 ft and 0.3 ft increases in median water-level altitude between the baseline period, and 2001 and 2002, respectively, are greater than the apparent precision (0.1 ft) of the median for the baseline period.

In summary, 2002 median water-level altitudes in six of seven wells in Jackass Flats were greater (0.3–2.4 ft) than those during their respective baselines. At one well in Jackass Flats (site JF-2) a median water-level altitude was not calculated for 2002; that well, in 2001, exhibited a median water-level altitude 0.7 ft greater than its baseline and a median water-level altitude 0.3 ft greater than that in 1999. At most sites, annual changes in median water-level altitudes exceeded historical variability for their respective baseline periods; such changes could be due to lengths of historical baseline periods, withdrawals or recharge that differed from those during baseline periods, or combinations of effects. Ground-water withdrawals in Jackass Flats during 2000 to 2002 were less than the median of about 52 Mgal during 1983 to 1991 (La Camera and Westenburg, 1994, p. 30) and generally decreased from 33.3 Mgal in 1999 to 17.7 Mgal in 2002. From 1999 to 2002, water-level altitudes in six of seven wells in Jackass Flats increased from 0.1 to 0.8 ft.

REFERENCES CITED

- Boucher, M.S., 1994, Water levels in wells J-11 and J-12, 1989–91, Yucca Mountain area, Nevada: U.S. Geological Survey Open-File Report 94-303, 9 p.
- Buchanan, T.J., and Somers, W.P., 1969, Discharge measurements at gaging stations: U.S. Geological Survey Techniques of Water-Resources Investigations, book 3, chap. A8, 65 p.
- Cardinalli, J.L., Roach, L.M., Rush, F.E., and Vasey, B.J., 1968, State of Nevada hydrographic areas: Nevada Division of Water Resources map, 1:500 000-scale.
- Dudley, W.W., Jr., and Larson, J.D., 1976, Effect of irrigation pumping on desert pupfish habitats in Ash Meadows, Nye County, Nevada: U.S. Geological Survey Professional Paper 927, 52 p.
- Fenelon, J.M., and Moreo, M.T., 2002, Trend analysis of ground-water levels and spring discharge in the Yucca Mountain region, Nevada and California, 1960-2000: U.S. Geological Survey Water-Resources Investigations Report 02-4178, 97 p.
- Fenneman, N.M., 1931, Physiography of western United States: New York, McGraw-Hill, 534 p.
- Gemmell, J.M., 1990, Water levels in periodically measured wells in the Yucca Mountain area, Nevada, 1988: U.S. Geological Survey Open-File Report 90-113, 47 p.
- Graves, R.P., 1998, Water levels in the Yucca Mountain area, Nevada, 1996: U.S. Geological Survey Open-File Report 98-169, 81 p.
- 2000, Water levels in the Yucca Mountain area, Nevada, 1997-98: U.S. Geological Survey Open-File Report 00-186, 81 p.
- Graves, R.P., and Goemaat, R. L., 1998, Water levels in the Yucca Mountain area, Nevada, 1995: U.S. Geological Survey Open-File Report 97-101, 92 p.
- Graves, R.P., Tucci, Patrick, and Goemaat, R.L., 1996, Water levels in the Yucca Mountain area, Nevada, 1994: U.S. Geological Survey Open-File Report 95-757, 101 p.
- Hale, G.S., and Westenburg, C.L., 1995, Selected ground-water data for Yucca Mountain region, southern Nevada and eastern California, calendar year 1993: U.S. Geological Survey Open-File Report 95-158, 67 p.
- Harrill, J.R., Gates, J.S., and Thomas, J.M., 1988, Major ground-water flow systems in the Great Basin region of Nevada, Utah, and adjacent states: U.S. Geological Survey Hydrologic Investigations Atlas HA-694-C, 2 sheets.
- Johnston, R.H., 1968, U.S. Geological Survey tracer study, Amargosa Desert, Nye County, Nevada, Part 1, Exploratory drilling, tracer well construction and testing, and preliminary findings: U.S. Geological Survey Report USGS-474-98, 64 p. [Available only from National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.]
- Kilpatrick, F.A., and Schneider, V.R., 1983, Use of flumes in measuring discharge: U.S. Geological Survey Techniques of Water-Resources Investigations, book 3, chap. A14, 46 p.
- Kilroy, K.C., 1991, Ground-water conditions in Amargosa Desert, Nevada-California, 1952-87: U.S. Geological Survey Water-Resources Investigations Report 89-4101, 93 p.
- La Camera, R.J., and Locke, G.L., 1998, Selected ground-water data for Yucca Mountain region, southern Nevada and eastern California, through December 1996: U.S. Geological Survey Open-File Report 97-821, 75 p.
- La Camera, R.J., Locke, G.L., and Munson, R.H., 1999, Selected ground-water data for Yucca Mountain region, southern Nevada and eastern California, through December 1997: U.S. Geological Survey Open-File Report 98-628, 84 p.
- La Camera, R.J., and Westenburg, C.L., 1994, Selected ground-water data for Yucca Mountain region, southern Nevada and eastern California, through December 1992: U.S. Geological Survey Open-File Report 94-54, 161 p.
- La Camera, R.J., Westenburg, C.L., and Locke, G.L., 1996, Selected ground-water data for Yucca Mountain region, southern Nevada and eastern California, through December 1995: U.S. Geological Survey Open-File Report 96-553, 75 p.
- Laczniak, R.J., Cole, J.C., Sawyer, D.A., and Trudeau, D.A., 1996, Summary of hydrogeologic controls on ground-water flow at the Nevada Test Site, Nye County, Nevada: U.S. Geological Survey Water-Resources Investigations Report 96-4109, 59 p.
- Lobmeyer, D.H., Luckey, R.R., O'Brien, G.M., and Burkhardt, D.J., 1995, Water levels in continuously monitored wells in the Yucca Mountain area, Nevada, 1989: U.S. Geological Survey Open-File Report 93-98, 173 p.
- Locke, G.L., 2001a, Selected ground-water data for Yucca Mountain region, southern Nevada and eastern California, through December 1998: U.S. Geological Survey Open-File Report 99-250, 88 p.
- 2001b, Selected ground-water data for Yucca Mountain region, southern Nevada and eastern California, through December 1999: U.S. Geological Survey Open-File Report 00-479, 75 p.
- Luckey, R.R., Lobmeyer, D.H., and Burkhardt, D.J., 1993, Water levels in continuously monitored wells in the Yucca Mountain area, Nevada, 1985-88: U.S. Geological Survey Open-File Report 91-493, 252 p.
- McKinley, P.W., Long, M.P., and Benson, L.V., 1991, Chemical analysis of water from selected wells and springs in the Yucca Mountain area, Nevada and southeastern California: U.S. Geological Survey Open-File Report 90-355, 47 p.

- O'Brien, G.M., 1991, Water levels in periodically measured wells in the Yucca Mountain area, Nevada, 1989: U.S. Geological Survey Open-File Report 91-178, 51 p.
- 1993, Earthquake-induced water-level fluctuations at Yucca Mountain, Nevada, June 1992: U.S. Geological Survey Open-File Report 93-73, 12 p.
- O'Brien, G.M., Tucci, Patrick, and Burkhardt, D.J., 1995, Water levels in the Yucca Mountain area, Nevada, 1992: U.S. Geological Survey Open-File Report 94-311, 74 p.
- Robison, J.H., 1984, Ground-water level data and preliminary potentiometric-surface maps, Yucca Mountain and vicinity, Nye County, Nevada: U.S. Geological Survey Water-Resources Investigations Report 84-4197, 8 p.
- Robison, J.H., Stephens, D.M., Luckey, R.R., and Baldwin, D.A., 1988, Water levels in periodically measured wells in the Yucca Mountain area, Nevada, 1981-87: U.S. Geological Survey Open-File Report 88-468, 132 p.
- Rush, F.E., 1968, Index of hydrographic areas in Nevada: Nevada Division of Water Resources, Information Report 6, 38 p.
- Savard, C.S., 2001, Water levels in the Yucca Mountain area, Nevada, 1999: U.S. Geological Survey Open-File Report 01-343, 81 p.
- Thordarson, William, Young, R.A., and Winograd, I.J., 1967, Records of wells and test holes in the Nevada Test Site and vicinity (through December 1966): U.S. Geological Survey Open-File Report TEI-872, 26 p.
- Tucci, Patrick, and Burkhardt, D.J., 1995, Potentiometric-surface map, 1993, Yucca Mountain and vicinity, Nevada: U.S. Geological Survey Water-Resources Investigations Report 95-4149, 15 p.
- Tucci, Patrick, Goemaat, R.L., and Burkhardt, D.J., 1996a, Water levels in the Yucca Mountain area, Nevada, 1993: U.S. Geological Survey Open-File Report 95-159, 94 p.
- Tucci, Patrick, O'Brien, G.M., and Burkhardt, D.J., 1996b, Water levels in the Yucca Mountain area, Nevada, 1990-91: U.S. Geological Survey Open-File Report 94-111, 107 p.
- U.S. Geological Survey, 1986a, Beatty, Nevada—California: U.S. Department of the Interior, U.S. Geological Survey, no. 36116-E1-TM-100, topographic map, 1:100 000-scale metric.
- 1986b, Death Valley Junction, California—Nevada: U.S. Department of the Interior, U.S. Geological Survey, no. 36116-A1-TM-100, topographic map, 1:100 000-scale metric.
- 1996, Availability of ground-water data for California, water year 1995: U.S. Geological Survey Fact Sheet FS-114-96, 2 p.
- 2003, Water-Use Wells, Nevada Test Site and Vicinity: accessed at URL <http://nevada.usgs.gov/doe_nv/wateruse/wumap.asp> June 3, 2003.
- Waddell, R.K., Robison, J.H., and Blankennagel, R.K., 1984, Hydrology of Yucca Mountain and vicinity, Nevada-California—Investigative results through mid-1983: U.S. Geological Survey Water-Resources Investigations Report 84-4267, 72 p.
- Westenburg, C.L., and La Camera, R.J., 1996, Selected ground-water data for Yucca Mountain region, southern Nevada and eastern California, through December 1994: U.S. Geological Survey Open-File Report 96-205, 73 p.
- Winograd, I.J., and Thordarson, William, 1975, Hydrogeologic and hydrochemical framework, south-central Great Basin, Nevada-California, with special reference to the Nevada Test Site: U.S. Geological Survey Professional Paper 712-C, 126 p.

BASIC DATA

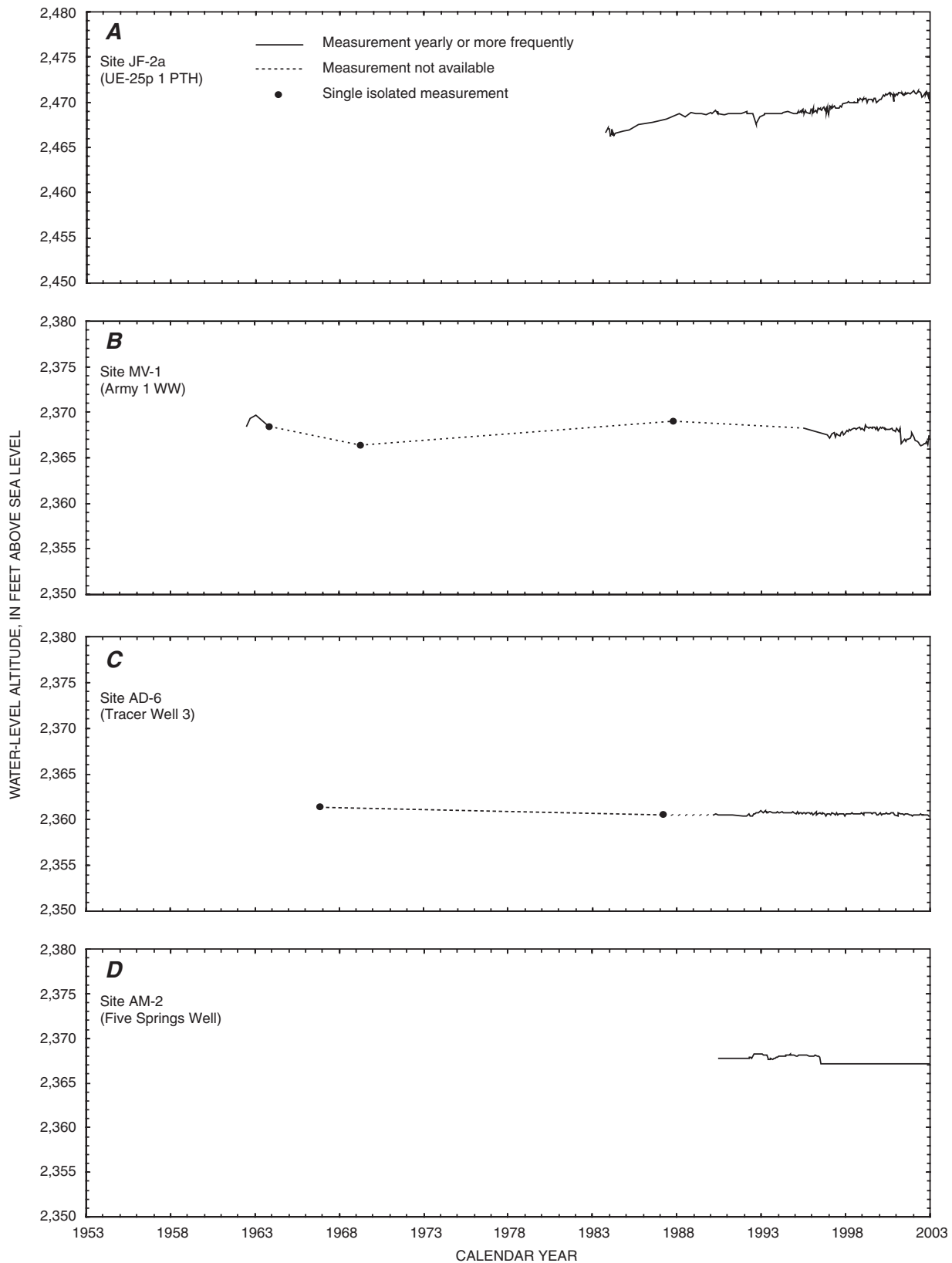


Figure 2. Periodic water levels for selected sites through 2002 at which primary contributing unit is carbonate rock. Data that may represent short-term conditions at a site have been excluded. (See section “Presentation of ground-water data.”)

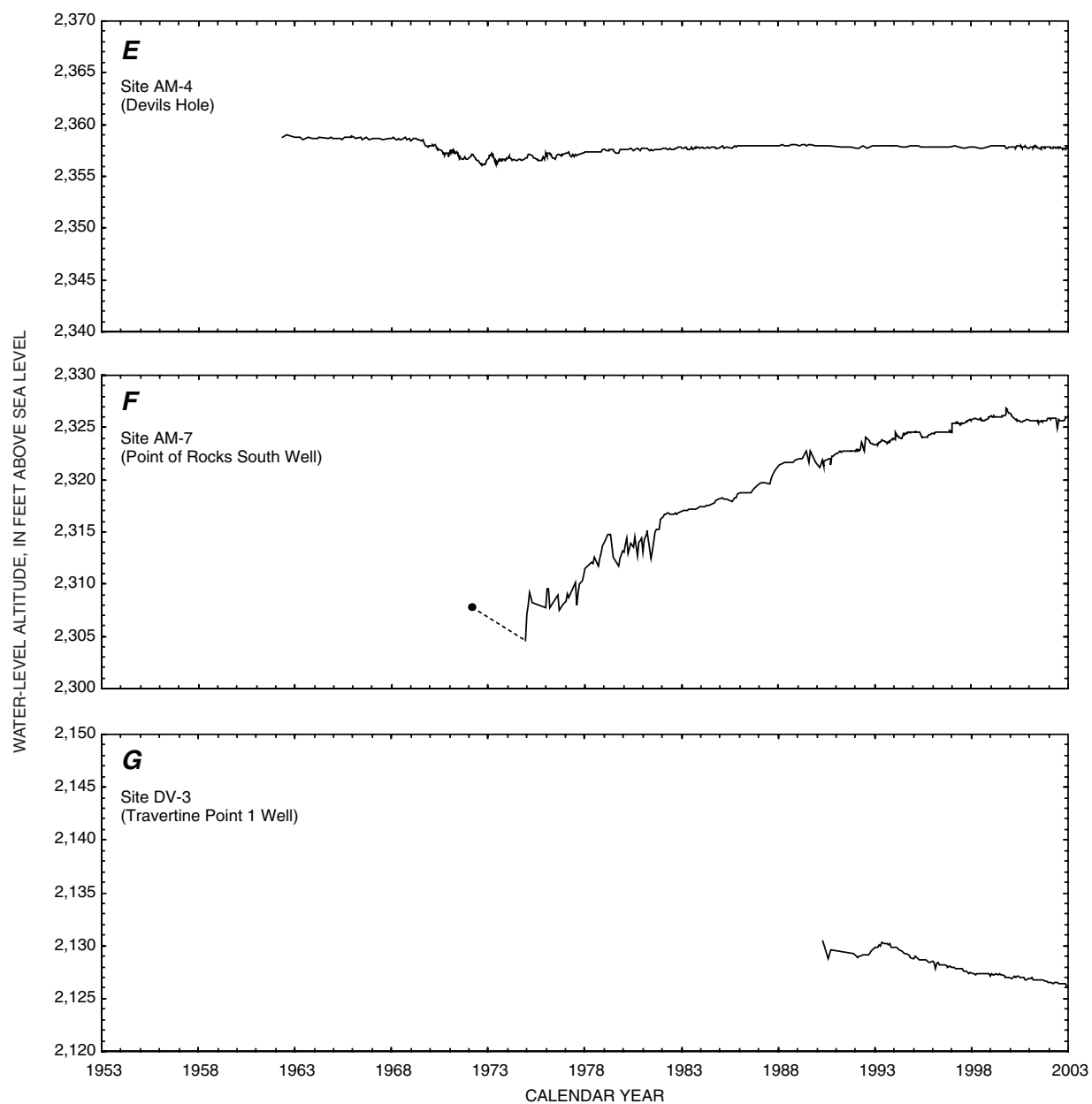


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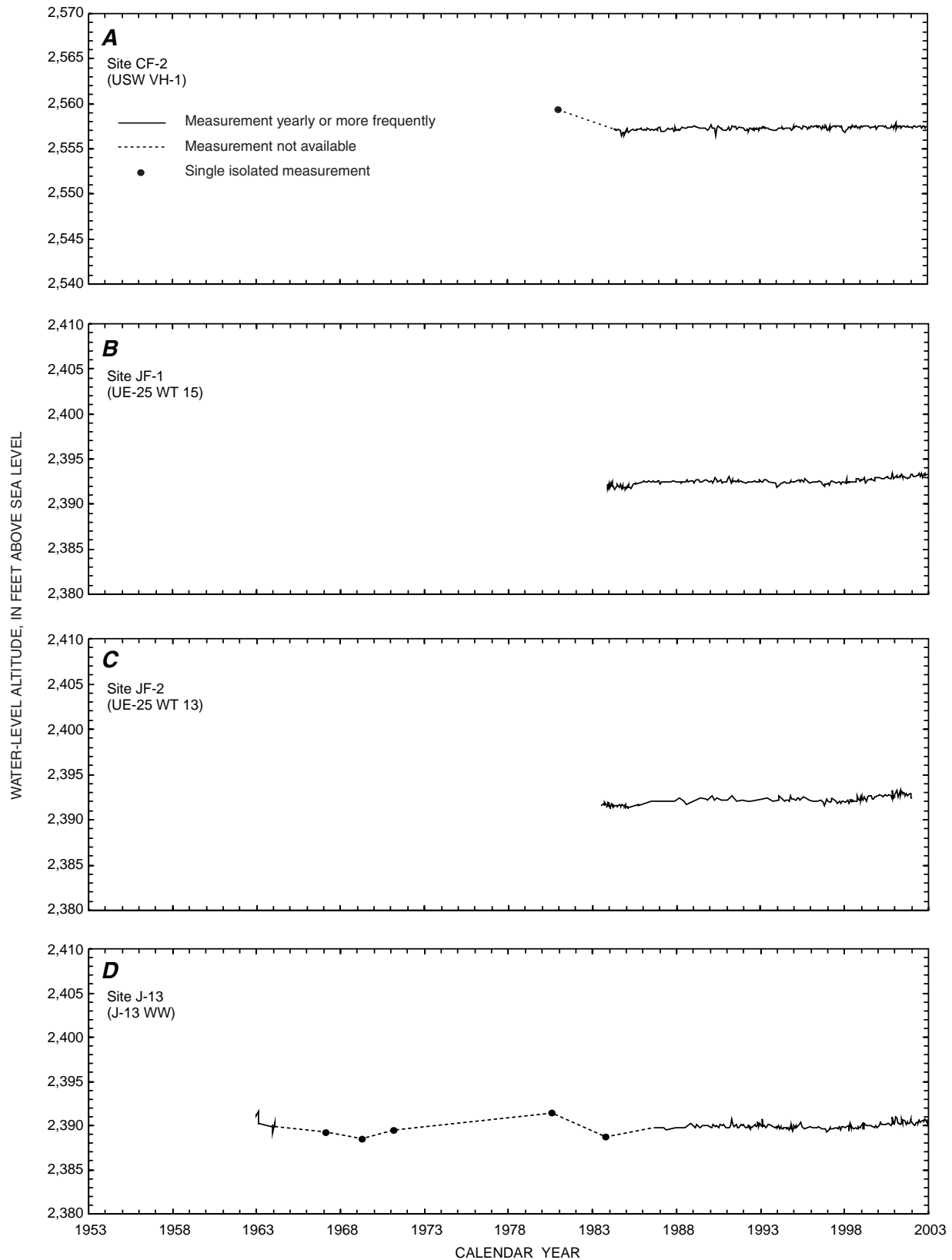


Figure 3. Periodic water levels for selected sites through 2002 at which primary contributing unit is volcanic rock. Data that may represent short-term conditions at a site have been excluded. (See section "Presentation of ground-water data.")

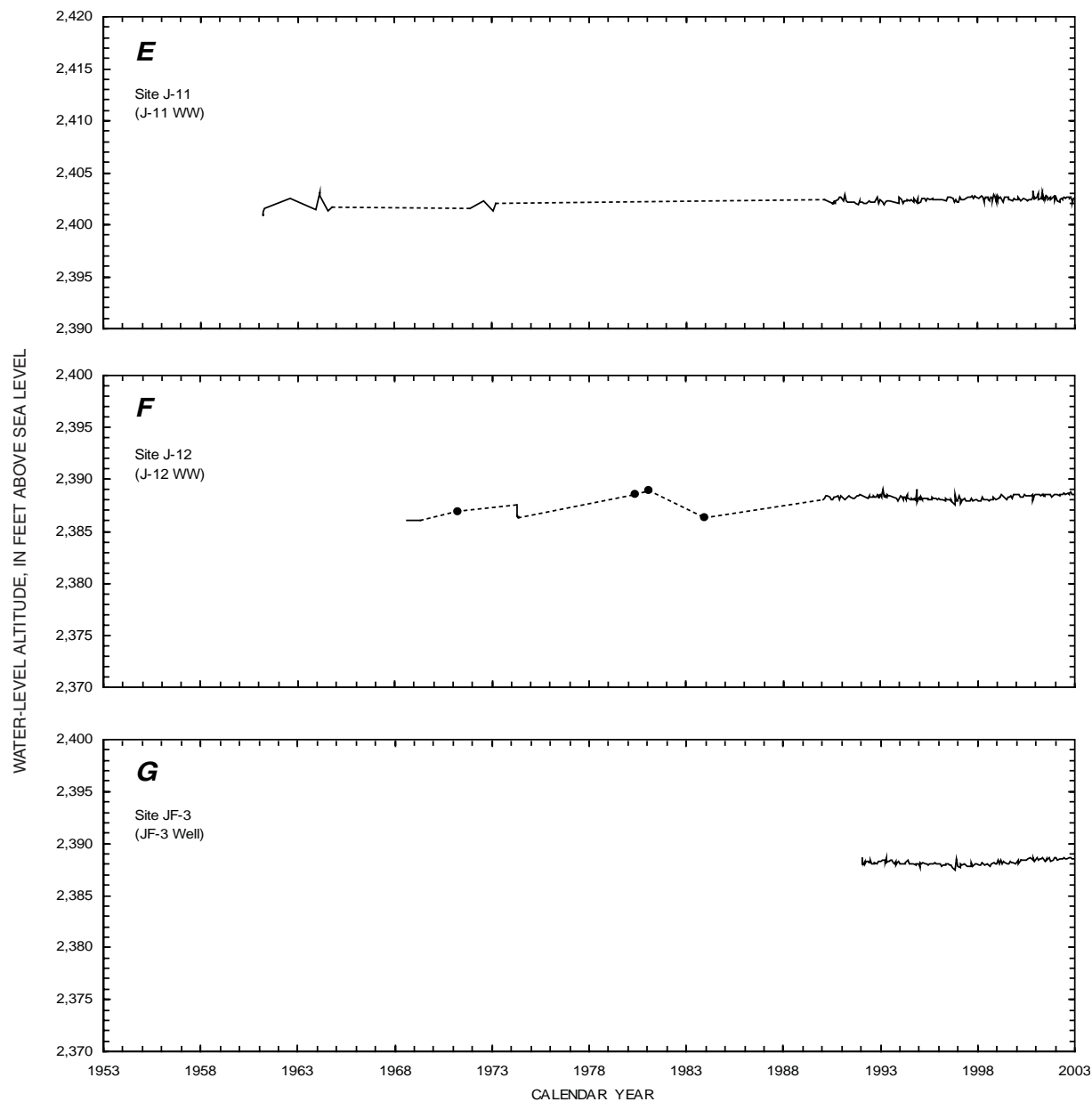


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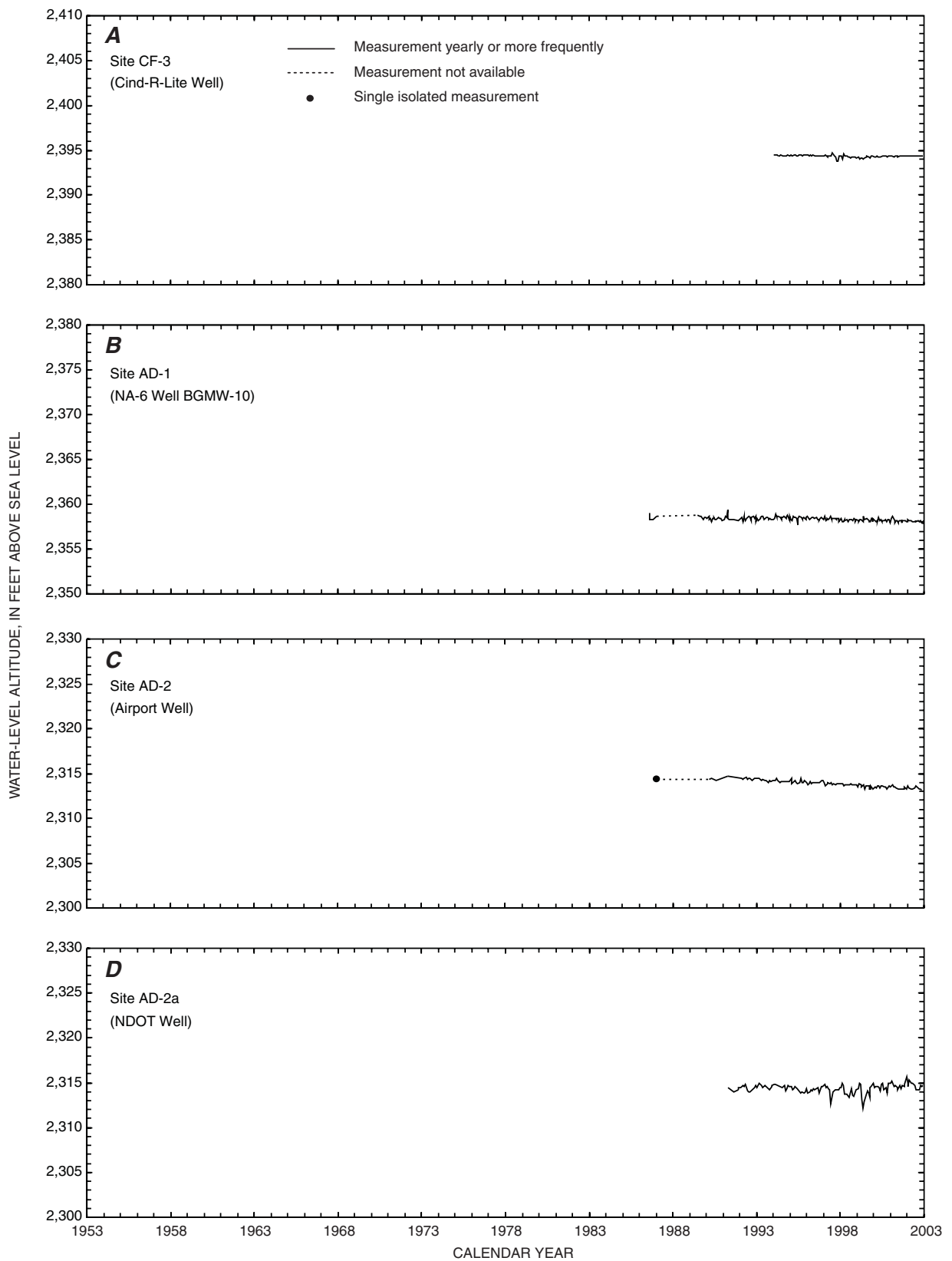


Figure 4. Periodic water levels for selected sites through 2002 at which primary contributing unit is valley fill. Data that may represent short-term conditions at a site have been excluded. (See section “Presentation of ground-water data.”)

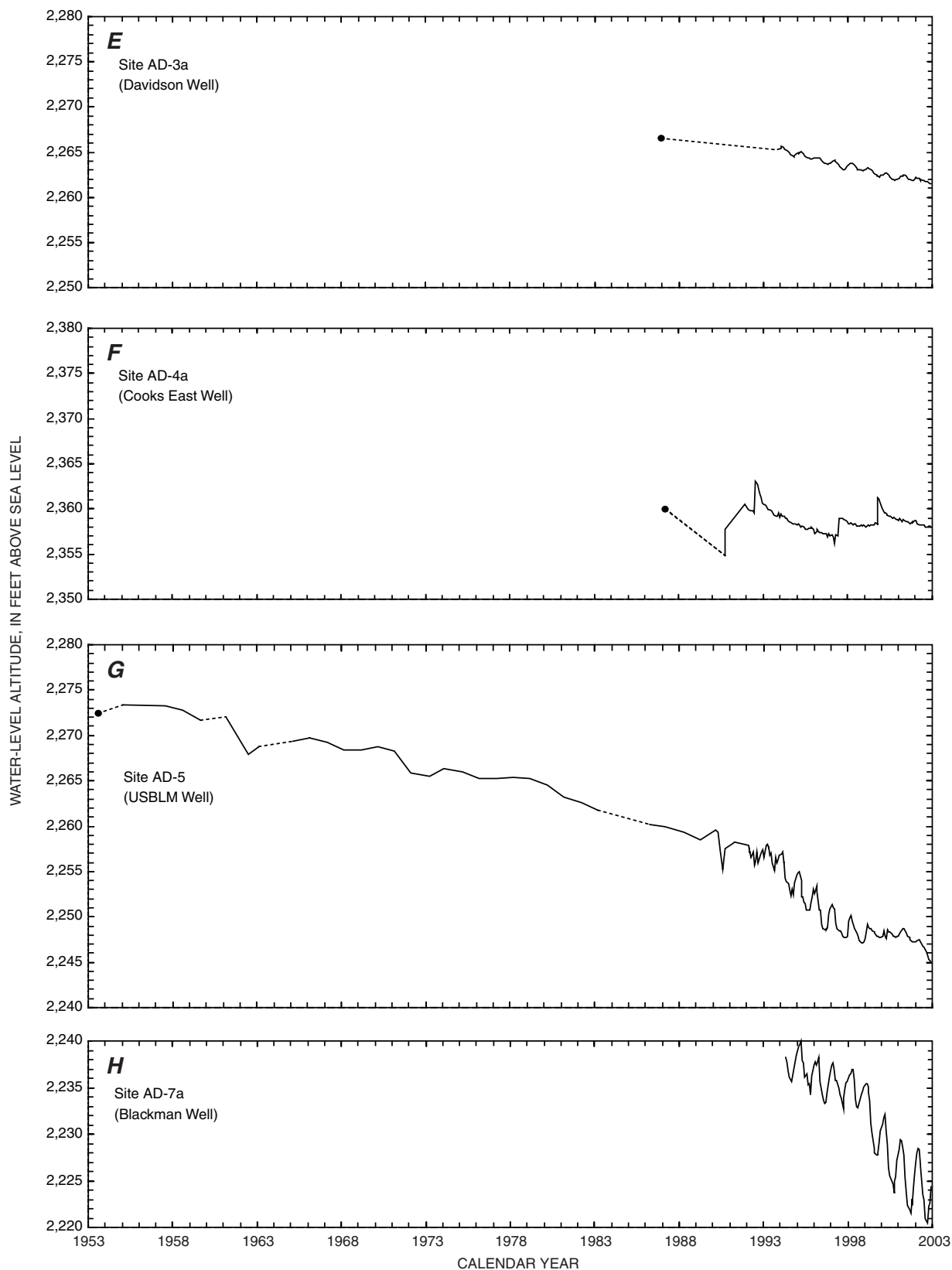


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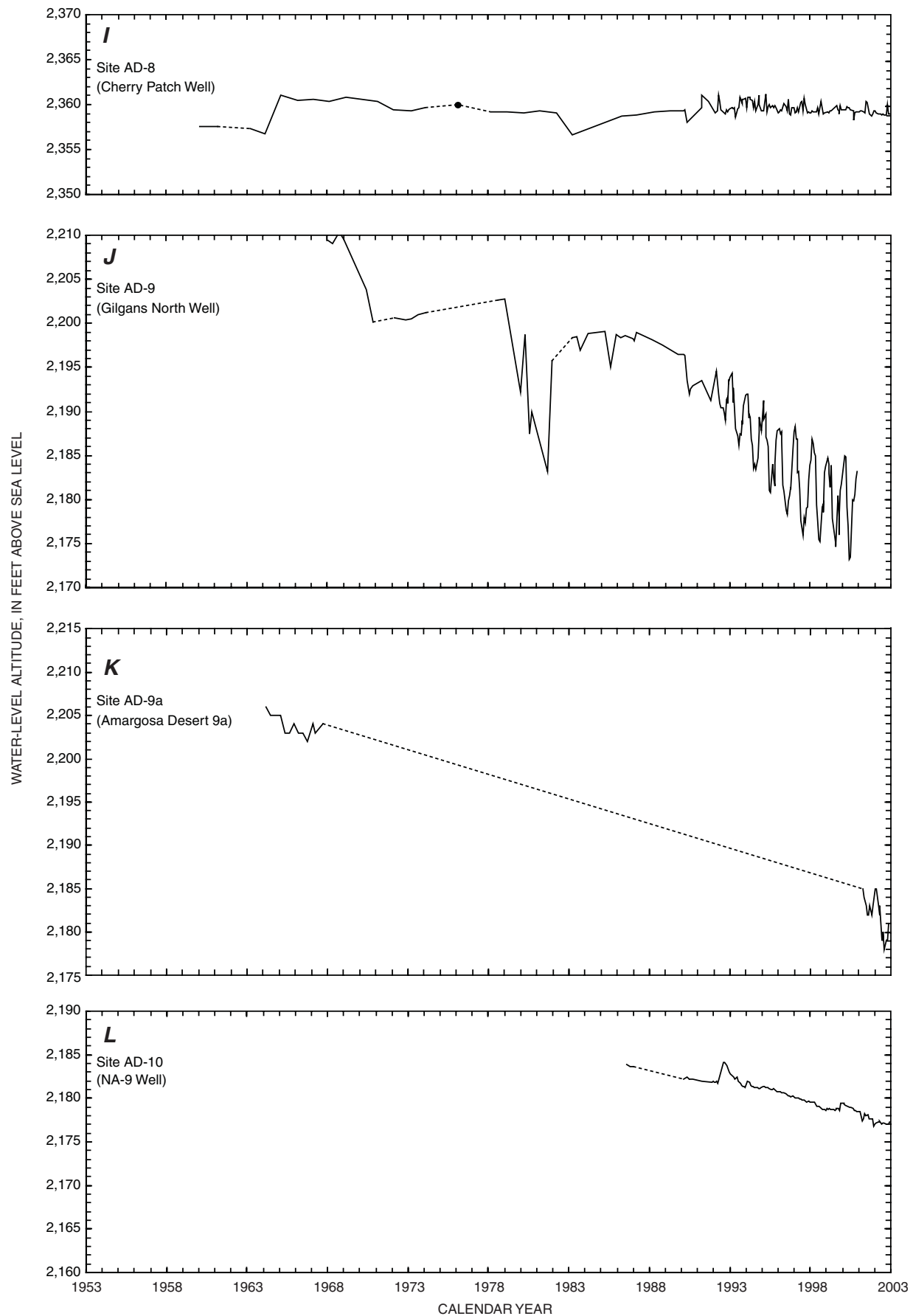


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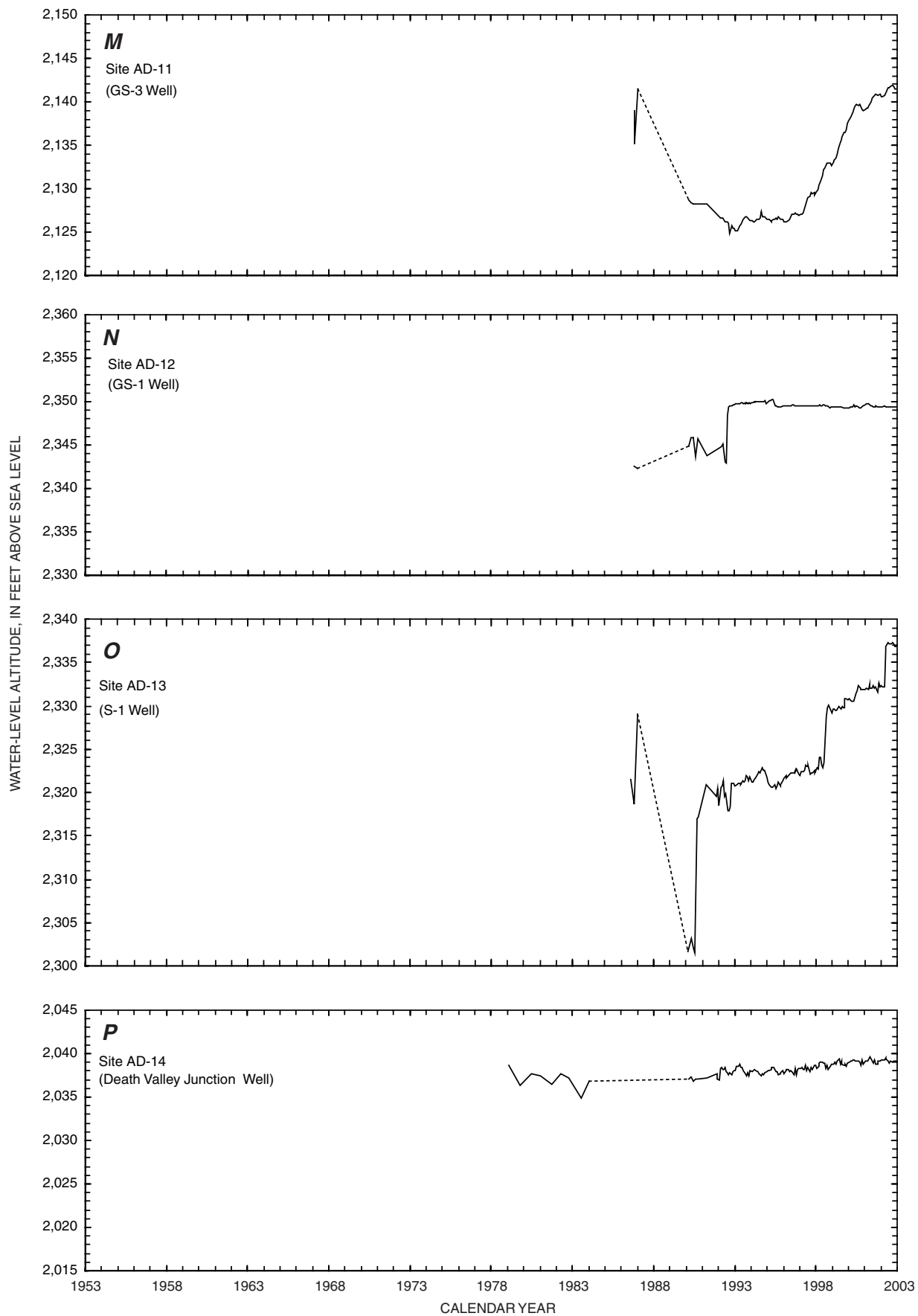


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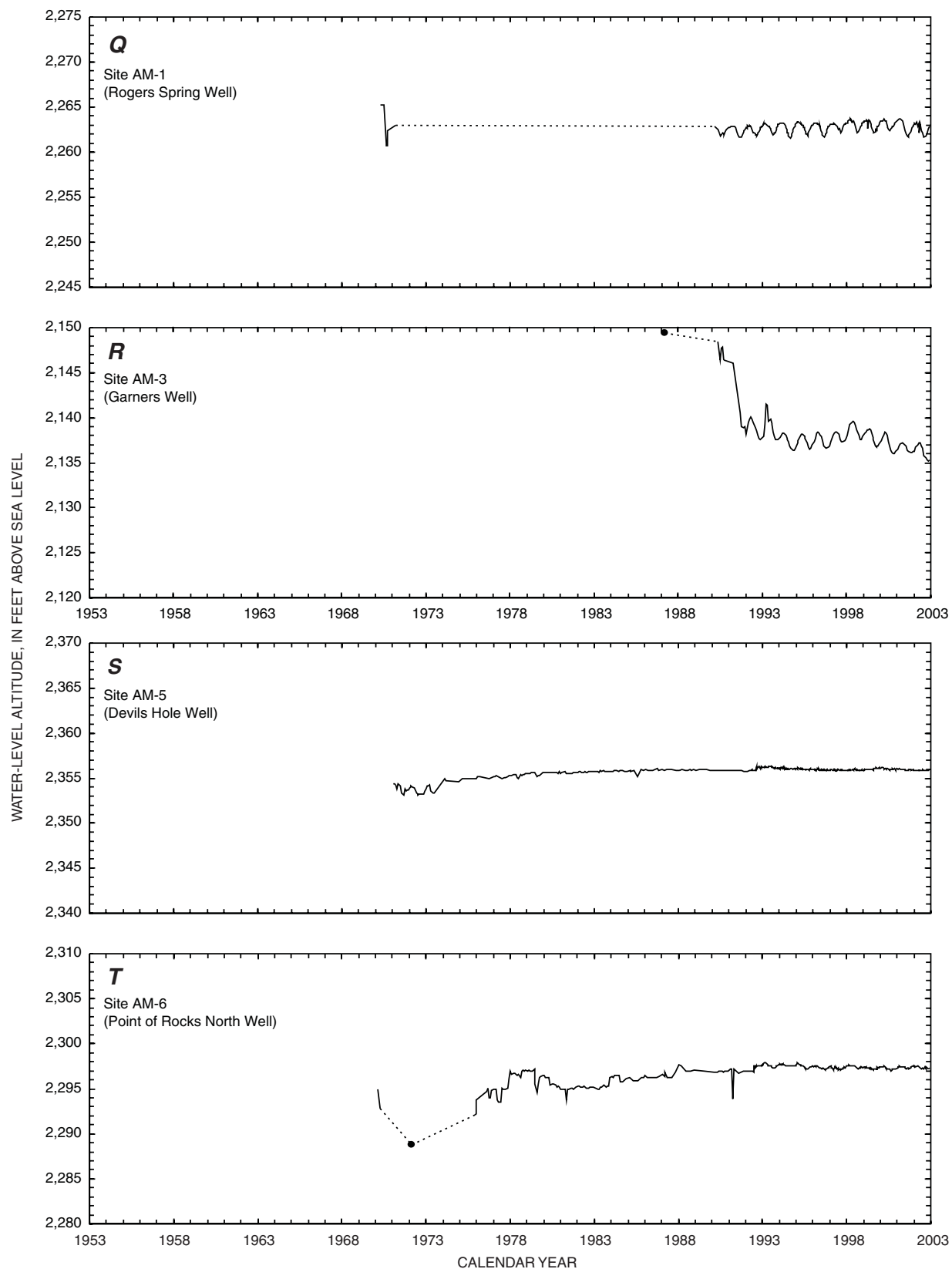


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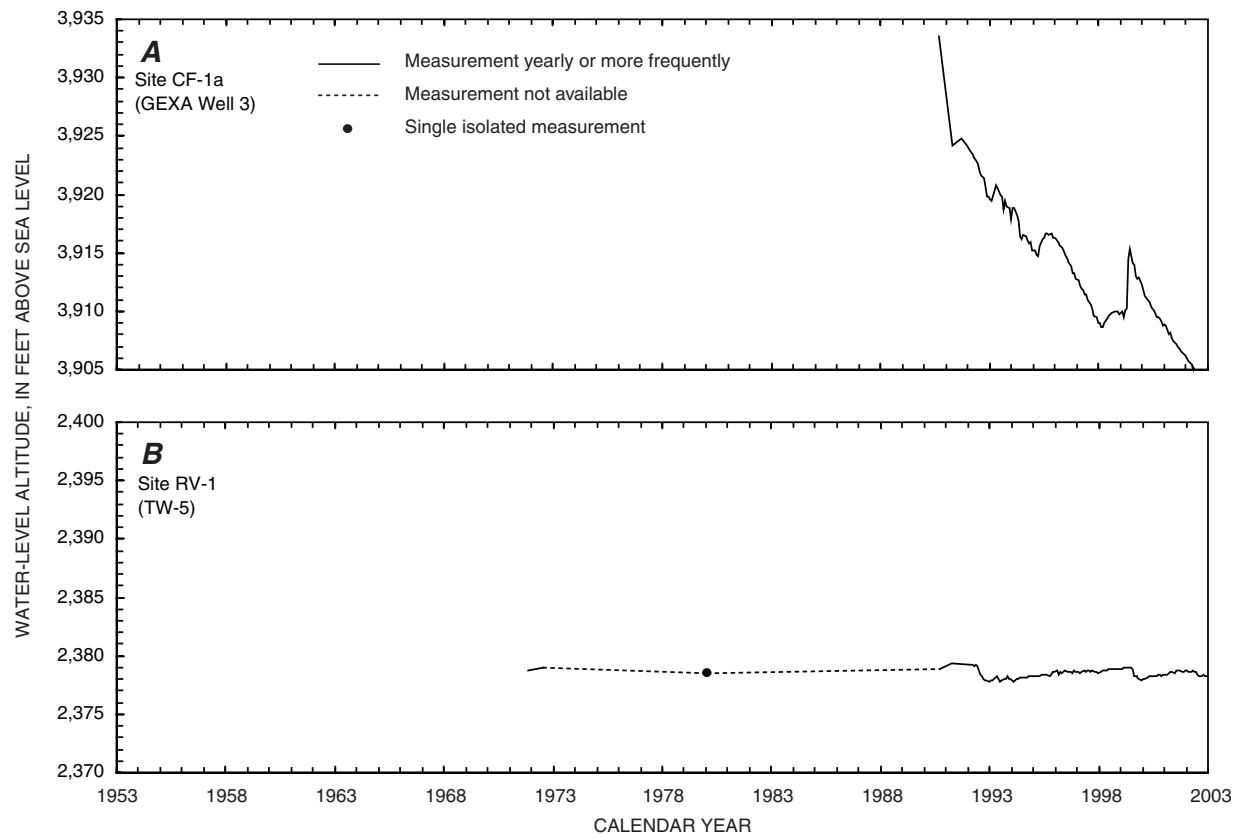


Figure 5. Periodic water levels for selected sites through 2002 at which primary contributing unit is undifferentiated sedimentary rock. Data that may represent short-term conditions at a site have been excluded. (See section “Presentation of ground-water data.”)

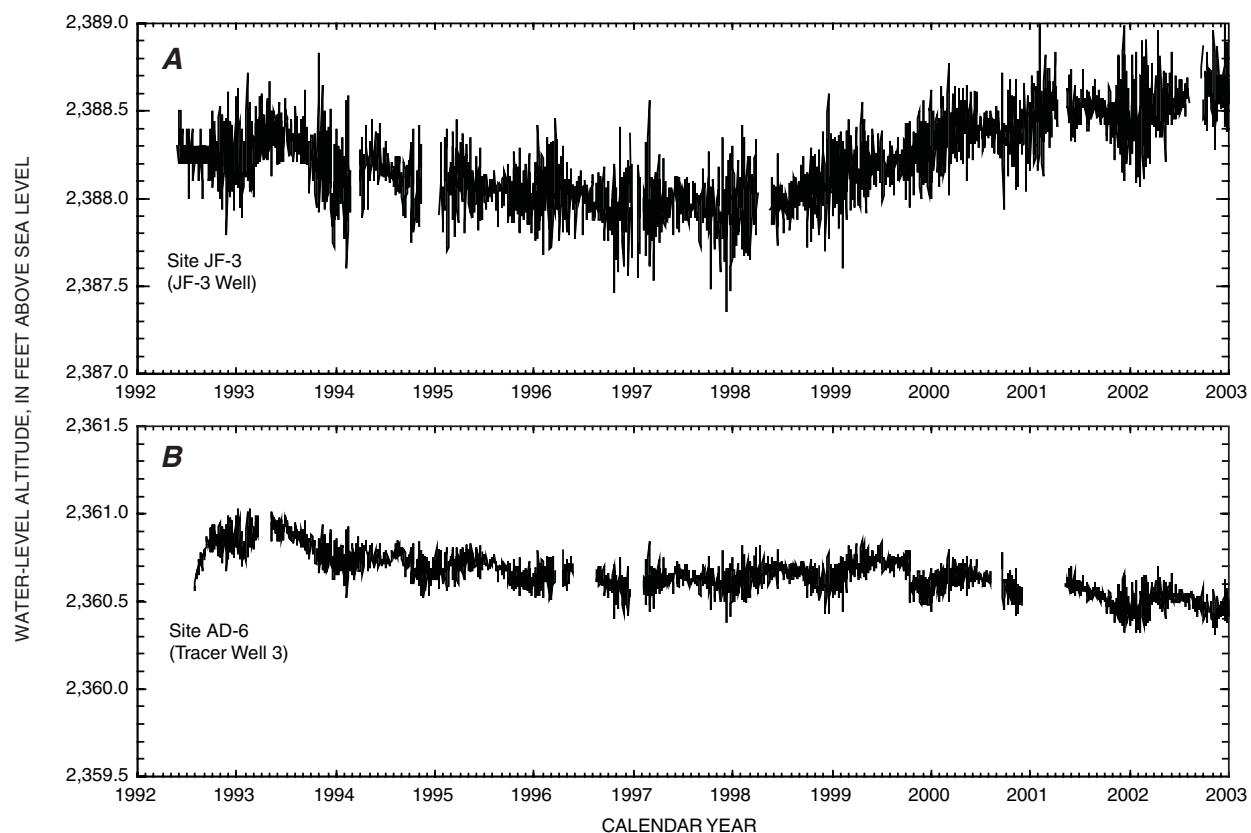


Figure 6. Daily average water levels in well JF-3, May 1992–December 2002 and in well AD-6, July 1992–December 2002.

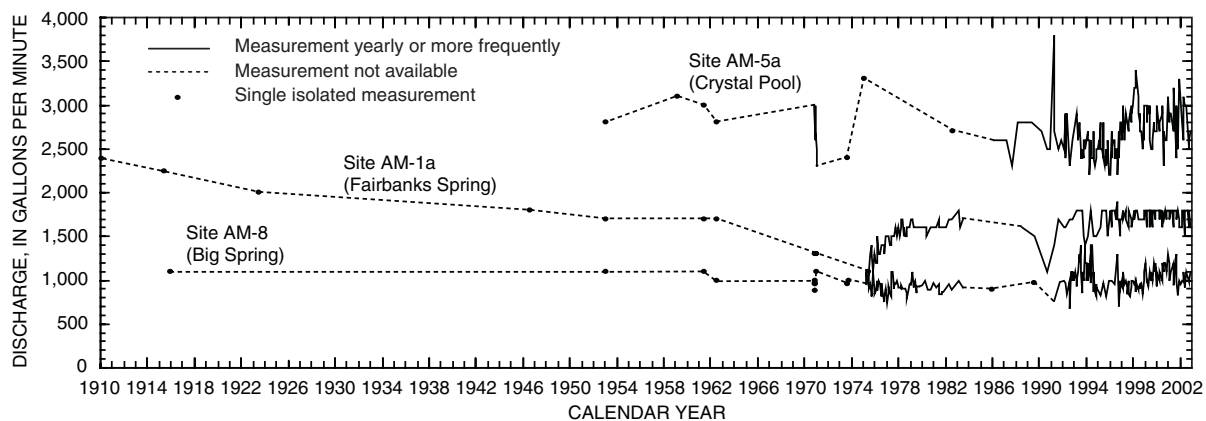


Figure 7. Discharge at sites AM-1a (Fairbanks Spring), AM-5a (Crystal Pool), and AM-8 (Big Spring), 1910–2002.

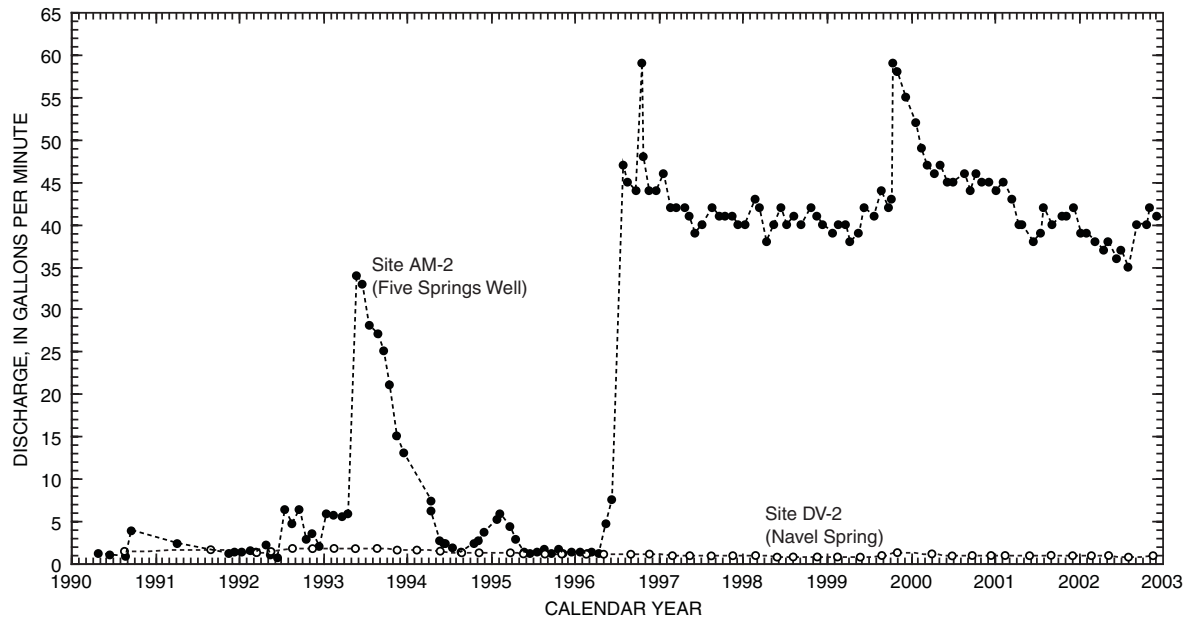


Figure 8. Discharge at sites AM-2 (Five Springs Well) and DV-2 (Navel Spring), 1990–2002. Symbols indicate periodic measurements presented in this and previous reports on selected ground-water data for Yucca Mountain region.

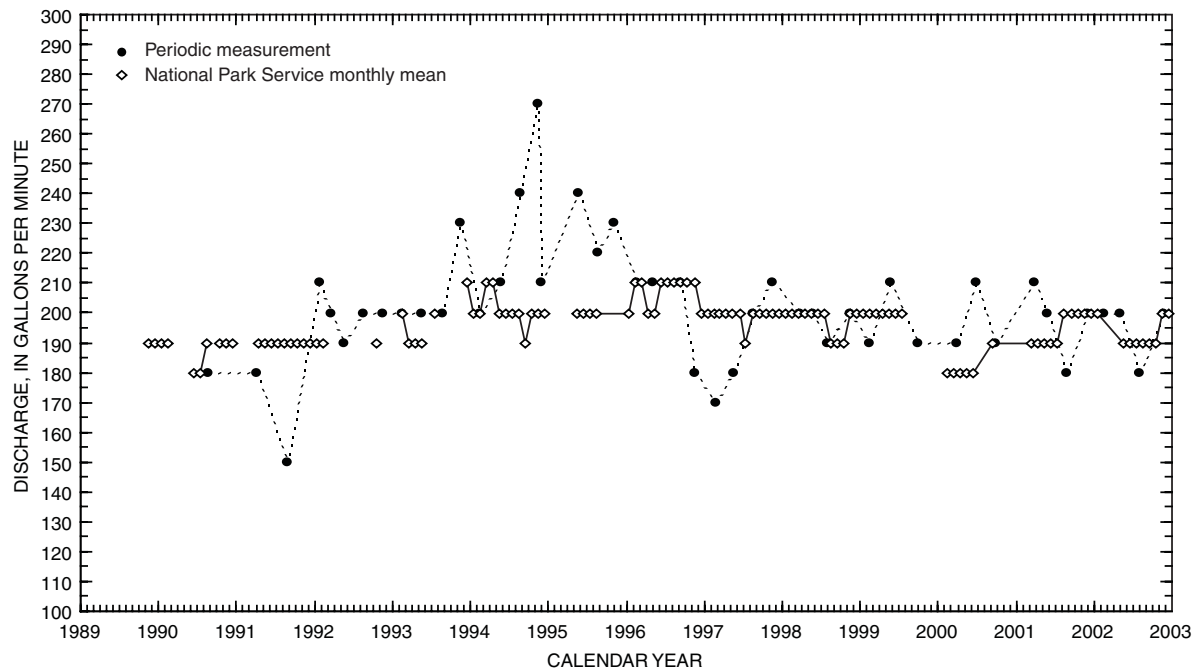


Figure 9. Discharge at site DV-1 (Texas Spring), 1989–2002. Periodic measurements for 1990–92 have been revised from those tabulated by La Camera and Westenburg (1994, table 5) to reflect water previously unaccounted for at the site. National Park Service monthly mean data are not connected by a line where data are not available for consecutive months. Differences between periodic measurements and monthly means may be due to site-specific conditions that affect accuracy of the measurement methods used. Accuracy of periodic measurements is limited by unmeasurable flow near the walls of the flume, an unequal distribution of velocities in the limited width of the measurement section, and a large percentage of total flow contained in each measurable portion of flow.

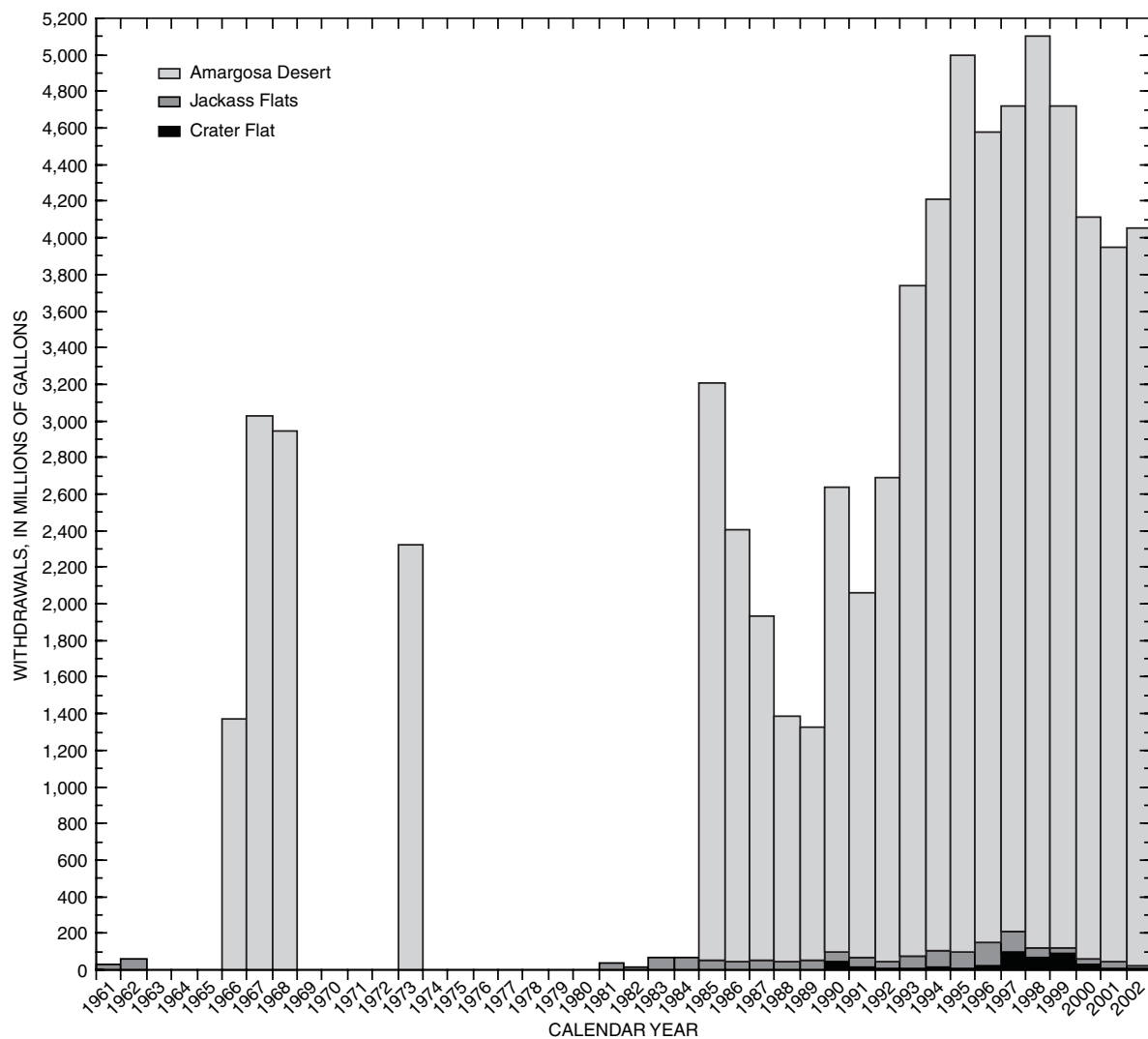


Figure 10. Available estimates of annual ground-water withdrawals for selected areas within Alkali Flat–Furnace Creek Ranch ground-water subbasin, 1961–2002.

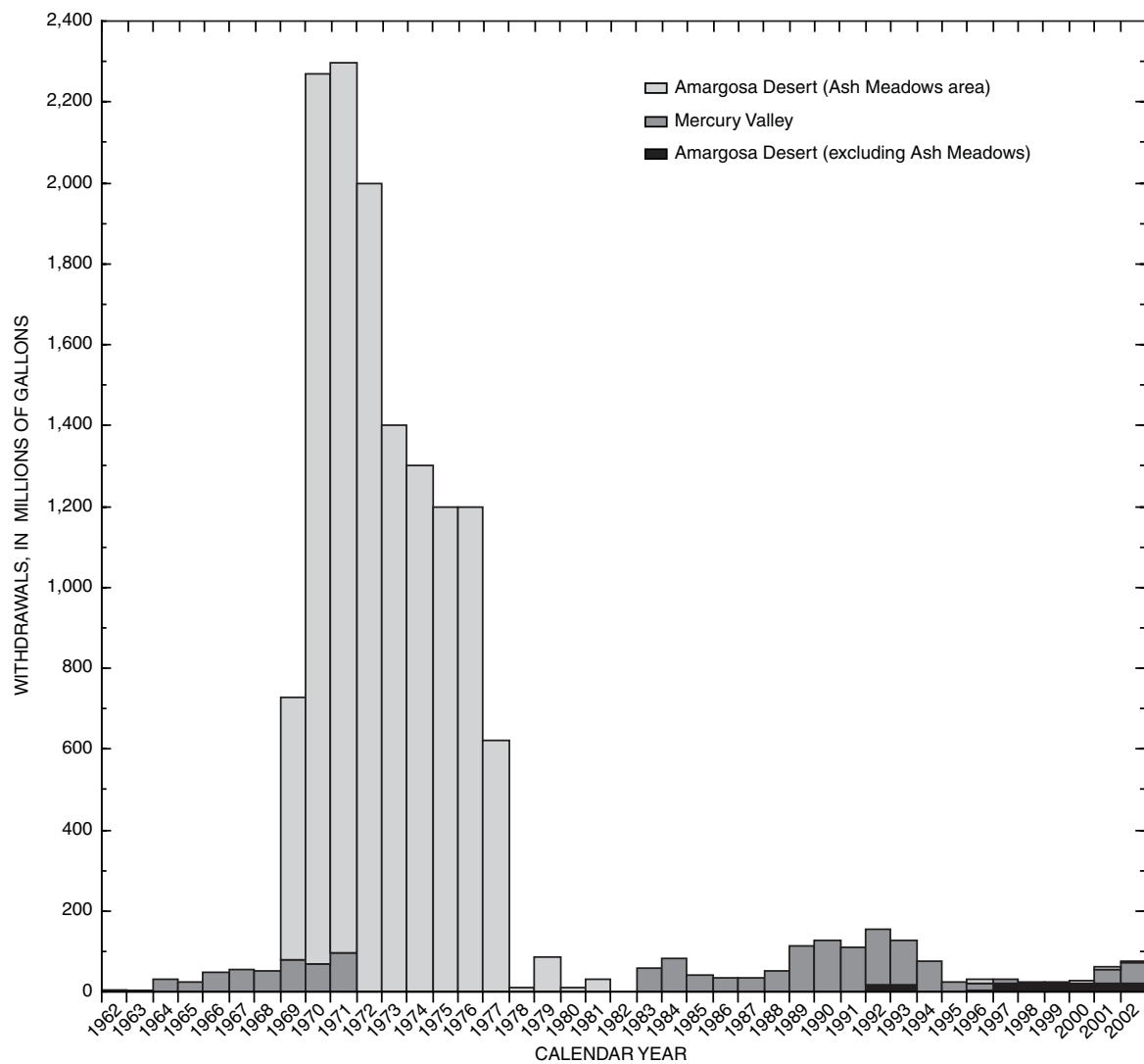


Figure 11. Available estimates of annual ground-water withdrawals for selected areas within Ash Meadows ground-water subbasin, 1962–2002.

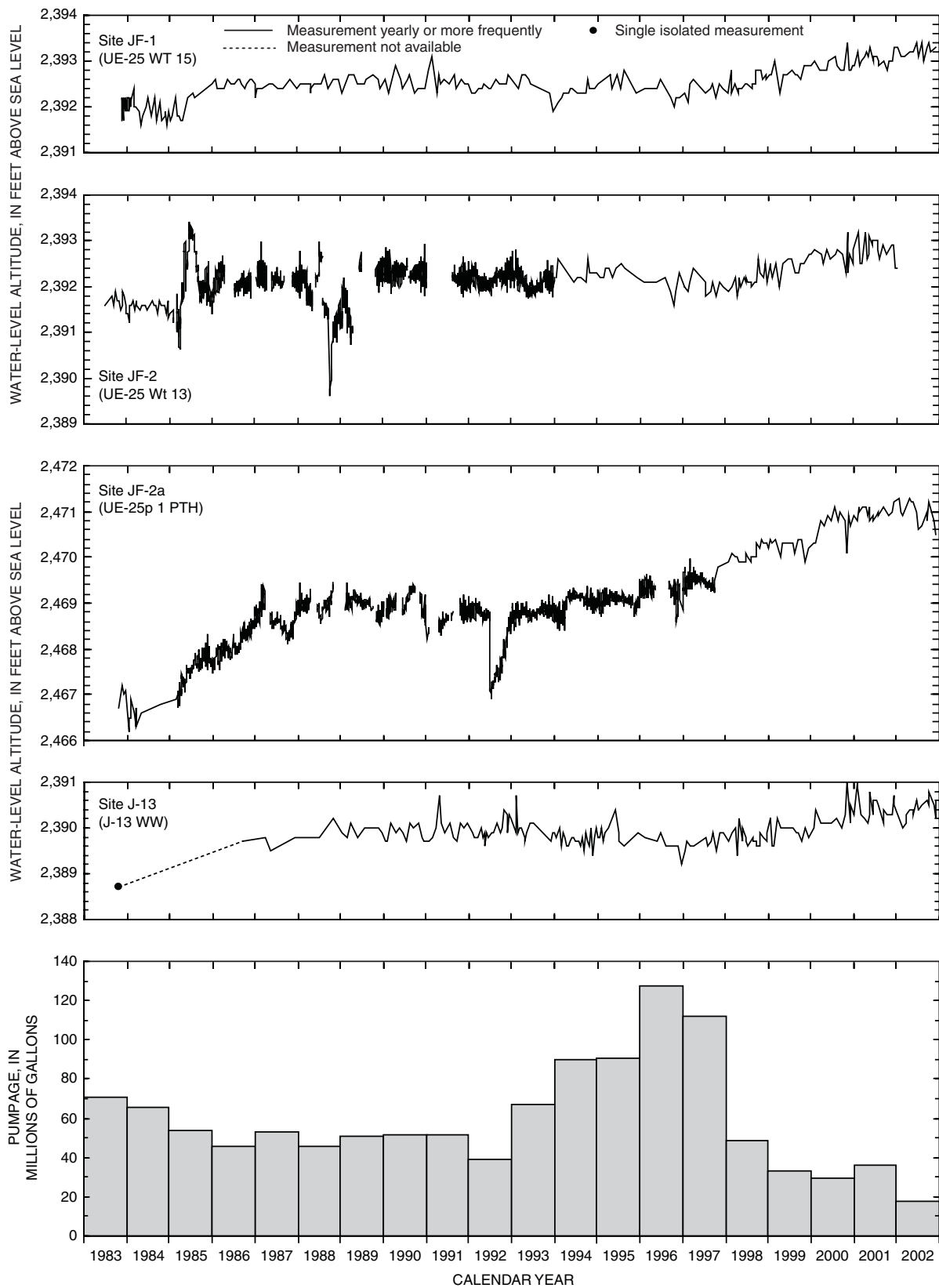


Figure 12. Water-level altitudes in wells JF-1, JF-2, JF-2a, J-13, J-11, J-12, and JF-3 and estimated annual ground-water withdrawals from Jackass Flats, 1983–2002. Periodic measurements that may reflect short-term conditions at a site have been excluded. (See section “Discussion of Ground-Water Levels and Ground-Water Withdrawals in Jackass Flats.”)

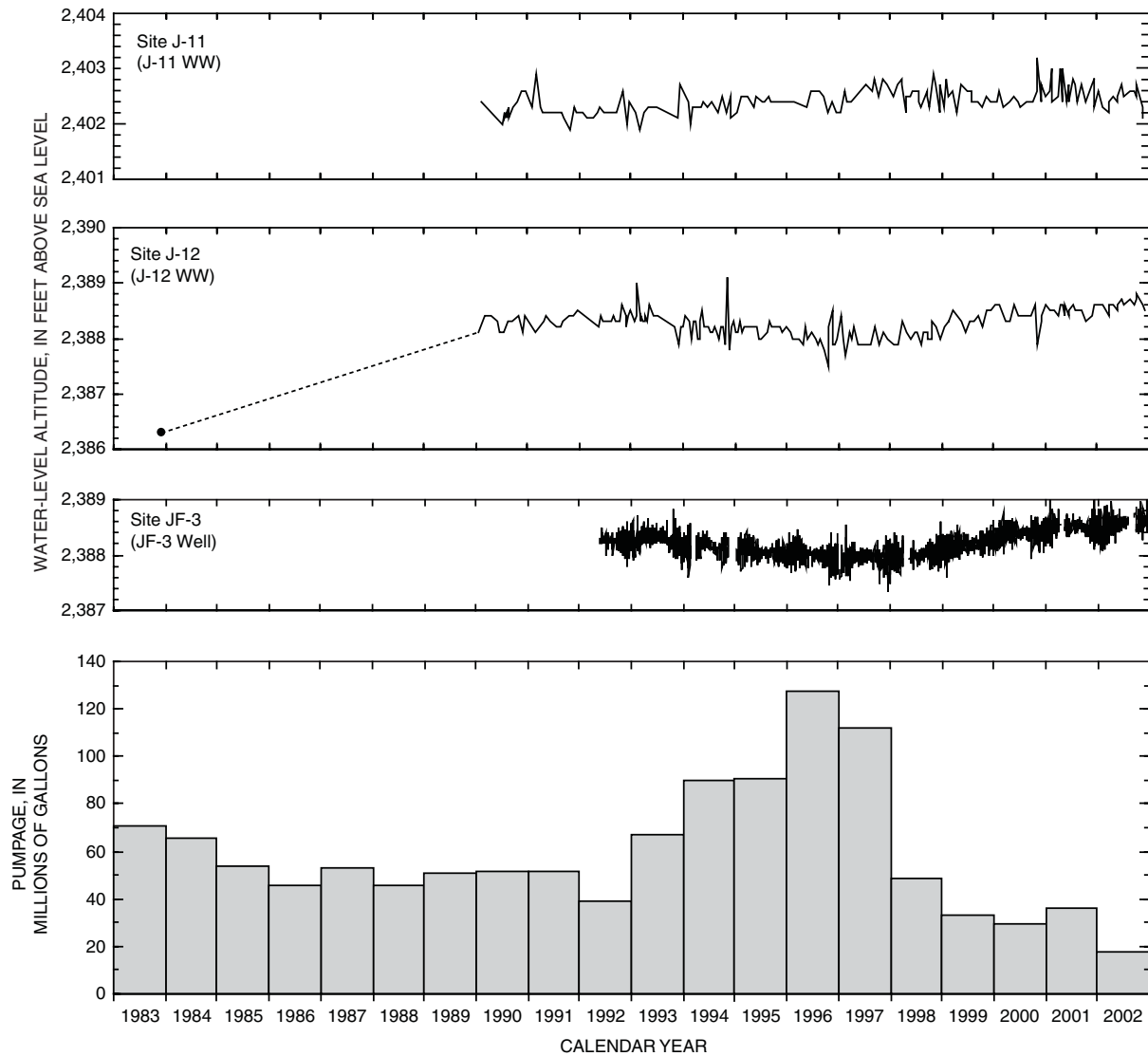


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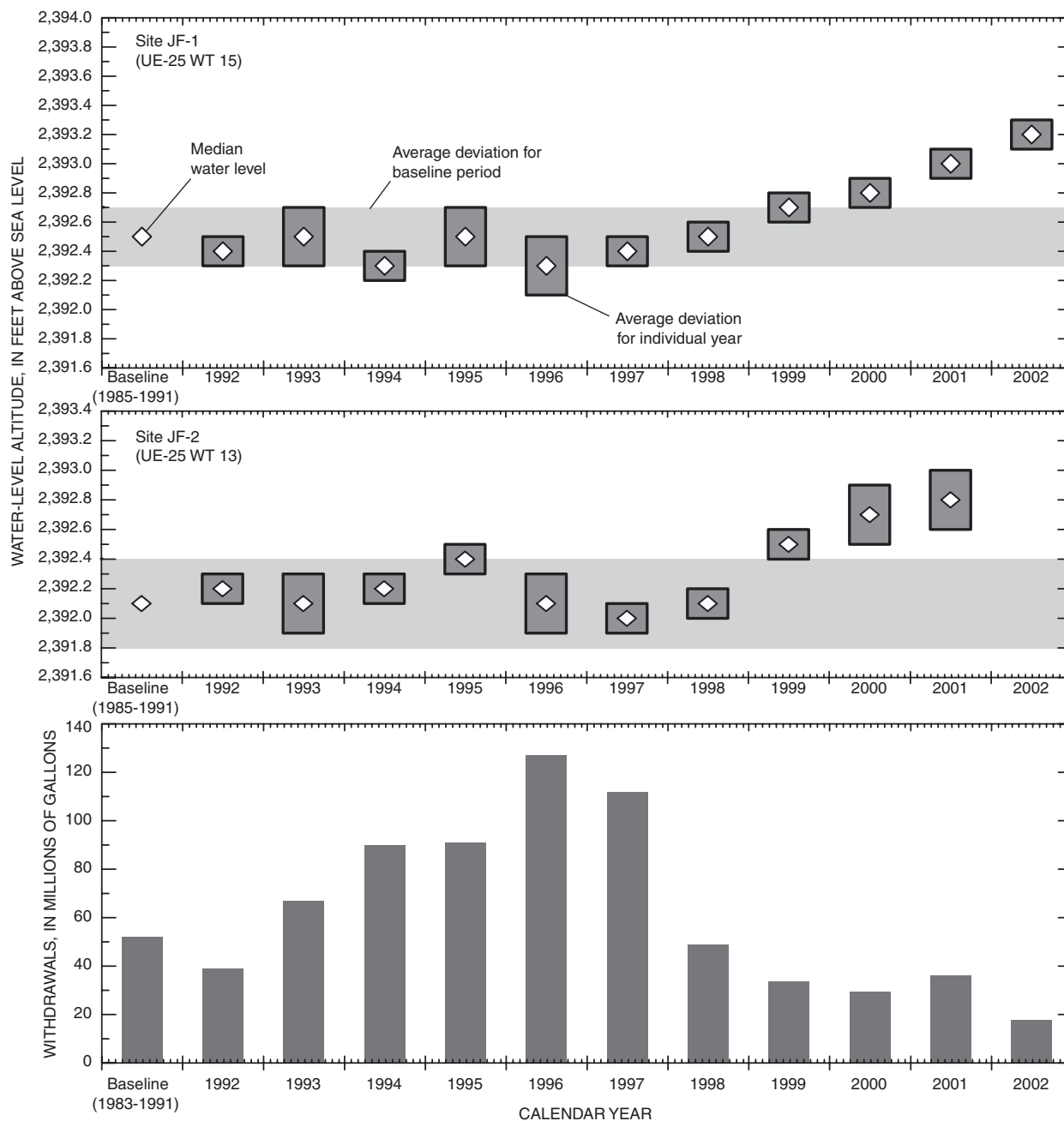


Figure 13. Median water-level altitudes and average deviation of water levels for wells JF-1, JF-2, JF-2a, J-13, J-11, J-12, and JF-3, and estimated annual ground-water withdrawals from Jackass Flats, for selected baseline periods and for 1992–2002.

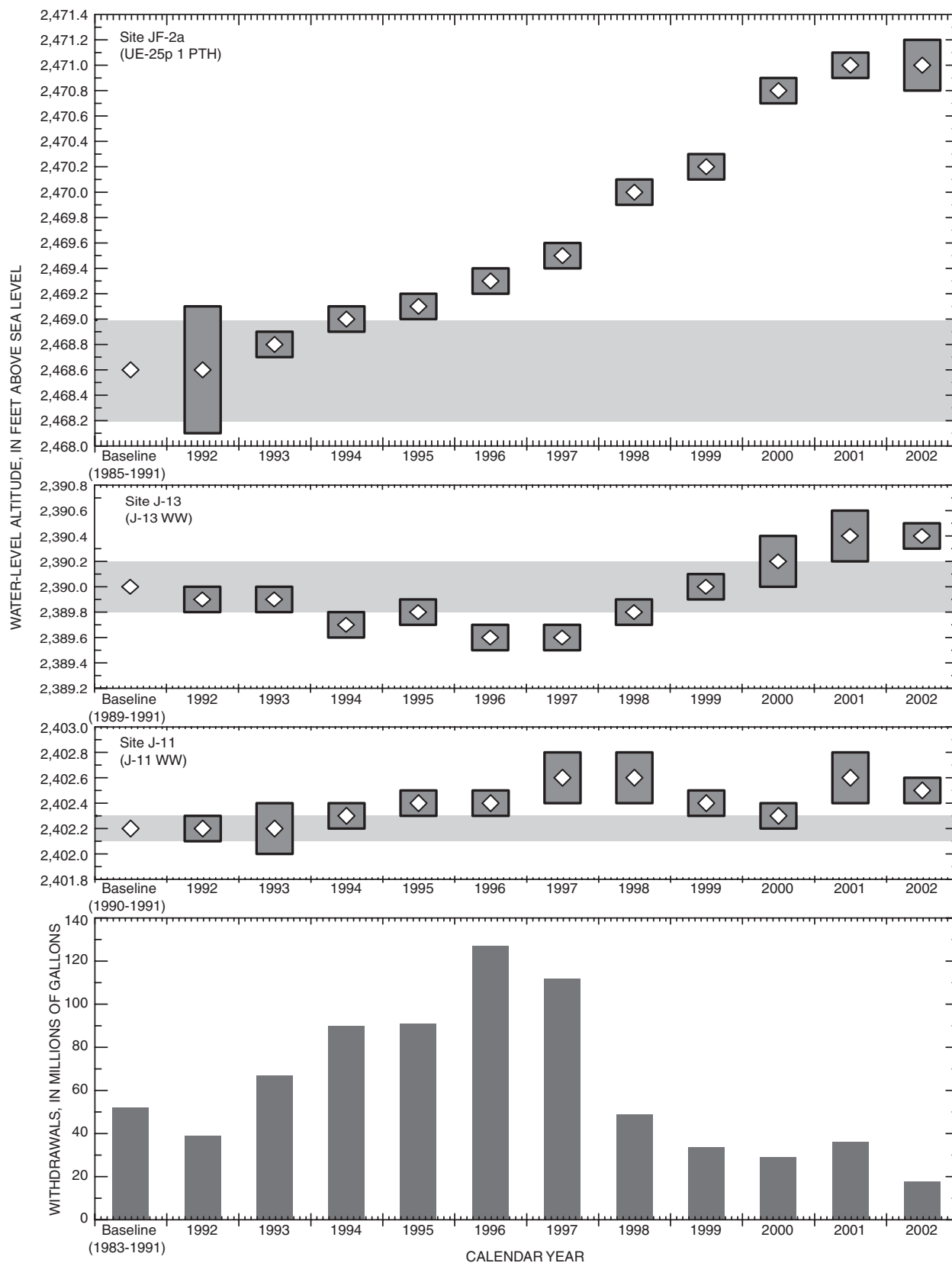


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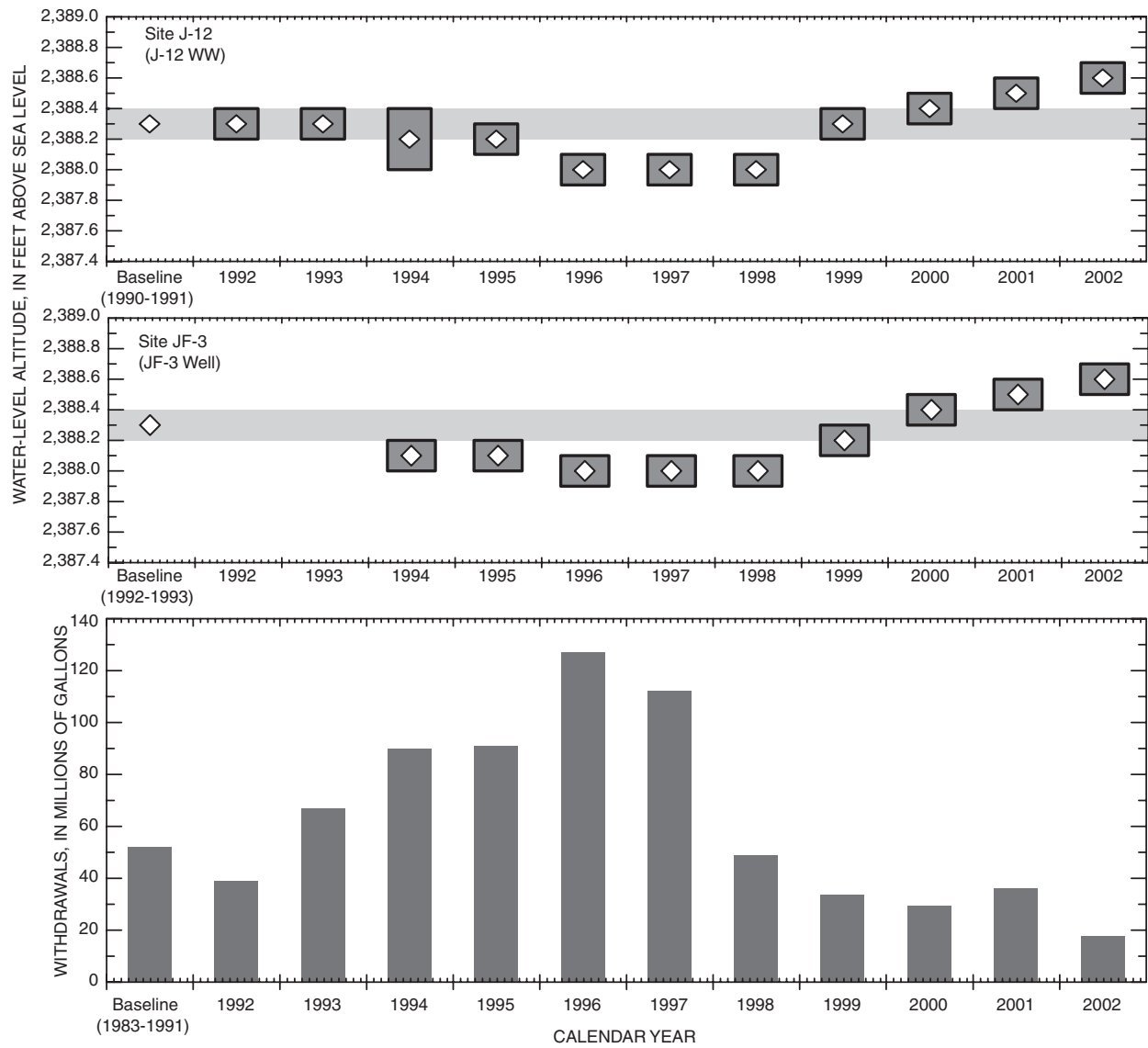


Figure 13. Continued.

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02

Site Number: Sites are grouped by hydrographic area and, within each area, are listed in general north-to-south, then west-to-east order. See text section “Site Number” for further discussion.

U.S. Geological Survey site identification: Unique identification number for site as stored in files and data bases of U.S. Geological Survey (USGS).

Land-surface altitude: Altitude of land surface in vicinity of site. Exception is altitude for site AM-4, which is altitude of bolt that serves as measurement point. Altitudes are reported to nearest 0.1 foot and were derived from USGS land surveys.

Height of measurement point: Height of measurement point (MP) used. MP is stable, recoverable point from which periodic measurements to depth of water are made. MP at site AM-4 is bolt fastened to south wall of fissure, and is not referenced to land surface. Negative number indicates MP is below land surface.

Depth to water: Depths listed generally represent water level below land surface. An exception is site AM-4, where data represent water levels below measurement point. Apparent differences in depth to water at sites that list data from several sources may result from differing estimates of distance from land surface to measurement point used.

Method: Method used to measure depth to water. S, steel tape; T, electric tape; V, calibrated electric tape; R, reported (measurement method unknown).

Site status: Known conditions at site that may have affected measured depth to water. F, flowing; P, pumping; R, well recently pumped; S, nearby well pumping during measurement; W, well destroyed; Z, measurement made in pump-discharge column.

Data source: EMP, Environmental-Monitoring Program (USGS); HRC, Harry Reid Center for Environmental Studies (University of Nevada, Las Vegas); NDWR, Nevada Division of Water Resources; NPS, National Park Service; PVT, private owner; SCP, Site-Characterization Project (USGS); WRI 89-4101, Kilroy (1991); USFWS, U.S. Fish and Wildlife Service.

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
CF-1a	365445116383901	GEXA Well 3	4,080.9	1.68	01-14-2000	1333	169.13	3,911.8	S	-	EMP
					02-18-2000	1231	169.63	3,911.3	S	-	EMP
					03-23-2000	1658	169.87	3,911.0	S	-	EMP
					04-13-2000	1426	170.07	3,910.8	S	-	EMP
					05-08-2000	1212	170.36	3,910.5	S	-	EMP
					06-06-2000	1231	170.65	3,910.2	S	-	EMP
					07-06-2000	1113	170.80	3,910.1	S	-	EMP
					08-25-2000	0909	171.43	3,909.5	S	-	EMP
					09-19-2000	0947	171.44	3,909.5	S	-	EMP
					10-11-2000	1017	171.53	3,909.4	S	-	EMP
					11-08-2000	1040	171.78	3,909.1	S	-	EMP
					12-05-2000	1133	172.10	3,908.8	S	-	EMP
					01-09-2001	1009	172.04	3,908.9	S	-	EMP
					02-06-2001	1252	172.15	3,908.8	S	-	EMP
					03-27-2001	1428	172.90	3,908.0	S	-	EMP
					04-19-2001	1709	172.78	3,908.1	S	-	EMP
					05-18-2001	1100	173.20	3,907.7	S	-	EMP
					06-14-2001	1051	173.50	3,907.4	S	-	EMP
					07-19-2001	1333	173.65	3,907.2	S	-	EMP
					08-23-2001	1353	173.90	3,907.0	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
CF-1a	365445116383901	GEXA Well 3	4,080.9	1.68	09-11-2001	1004	174.09	3,906.8	S	-	EMP
					10-11-2001	1311	174.28	3,906.6	S	-	EMP
					11-09-2001	1146	174.52	3,906.4	S	-	EMP
					12-13-2001	1540	174.75	3,906.2	S	-	EMP
					01-09-2002	1152	174.86	3,906.0	S	-	EMP
					02-06-2002	1250	175.20	3,905.7	S	-	EMP
					03-27-2002	1329	175.43	3,905.5	S	-	EMP
					04-22-2002	1129	175.78	3,905.1	S	-	EMP
					05-02-2002	1037	175.72	3,905.2	S	-	EMP
					06-20-2002	1123	176.08	3,904.8	S	-	EMP
					07-03-2002	1252	176.23	3,904.7	S	-	EMP
					08-26-2002	1334	176.62	3,904.3	S	-	EMP
					09-12-2002	1455	176.68	3,904.2	S	-	EMP
					10-24-2002	1615	176.96	3,903.9	S	-	EMP
					11-12-2002	1155	177.30	3,903.6	S	-	EMP
					12-09-2002	1533	177.38	3,903.5	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
CF-2	364732116330701	USW VH-1	3,161.1	1.17	01-10-2000	0910	603.65	2,557.4	S	-	SCP
					02-08-2000	0933	603.63	2,557.5	S	-	SCP
					03-15-2000	0922	603.58	2,557.5	S	-	SCP
					04-05-2000	1002	603.57	2,557.5	S	-	SCP
					05-15-2000	1010	603.59	2,557.5	S	-	SCP
					06-06-2000	0932	603.65	2,557.4	S	-	SCP
					07-11-2000	1543	603.63	2,557.5	S	-	SCP
					08-08-2000	0844	603.75	2,557.4	S	-	SCP
					09-11-2000	1034	603.81	2,557.3	S	-	SCP
					10-11-2000	1129	603.82	2,557.3	V	-	EMP
					10-26-2000	0959	603.52	2,557.6	V	-	SCP
					11-08-2000	0941	603.74	2,557.4	V	-	EMP
					11-28-2000	1519	603.67	2,557.4	V	-	SCP
					12-05-2000	1039	603.71	2,557.4	V	-	EMP
					12-28-2000	1358	603.62	2,557.5	V	-	SCP
					01-03-2001	1032	603.83	2,557.3	S	-	SCP
					02-06-2001	1356	603.17	2,557.9	V	-	EMP
					02-15-2001	1008	603.86	2,557.2	V	-	SCP
					03-21-2001	1246	603.59	2,557.5	V	-	SCP
					03-27-2001	1601	603.65	2,557.4	V	-	EMP
					04-11-2001	1318	603.65	2,557.4	V	-	SCP
					04-20-2001	1418	603.62	2,557.5	V	-	EMP
					05-18-2001	0947	603.61	2,557.5	V	-	EMP
					05-29-2001	1116	603.79	2,557.3	V	-	SCP
					06-20-2001	0942	603.73	2,557.4	V	-	SCP
					07-19-2001	1500	603.56	2,557.5	V	-	EMP
					08-23-2001	1633	603.59	2,557.5	V	-	EMP
					08-24-2001	1308	603.62	2,557.5	V	-	HRC
					09-11-2001	0838	603.65	2,557.4	V	-	EMP
					10-23-2001	0847	603.63	2,557.5	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
CF-2	364732116330701	USW VH-1	3,161.1	1.17	11-02-2001	1426	603.67	2,557.4	V	-	HRC
					11-09-2001	0900	603.69	2,557.4	V	-	EMP
					12-13-2001	1430	603.73	2,557.4	V	-	EMP
					01-17-2002	0959	603.73	2,557.4	S	-	EMP
					02-06-2002	1520	603.75	2,557.4	V	-	EMP
					02-22-2002	1357	603.61	2,557.5	V	-	HRC
					03-27-2002	1215	603.60	2,557.5	V	-	EMP
					04-22-2002	1020	603.69	2,557.4	V	-	EMP
					05-02-2002	1140	603.66	2,557.4	V	-	EMP
					05-06-2002	0942	603.69	2,557.4	V	-	HRC
					06-26-2002	1423	603.55	2,557.6	V	-	EMP
					07-03-2002	1358	603.53	2,557.6	V	-	EMP
					08-13-2002	1413	603.64	2,557.5	S	-	EMP
					08-20-2002	1305	603.78	2,557.3	V	-	HRC
					09-24-2002	0801	603.51	2,557.6	V	-	EMP
					10-24-2002	1340	603.54	2,557.6	V	-	EMP
					11-15-2002	1025	603.82	2,557.3	V	-	HRC
					11-19-2002	0912	603.76	2,557.3	V	-	EMP
					12-12-2002	1342	603.58	2,557.5	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
CF-3	364105116302601	Cind-R-Lite Well	2,725.6	-3.20	01-26-2000	1125	331.35	2,394.2	S	-	EMP
					02-22-2000	1033	331.36	2,394.2	S	-	EMP
					03-23-2000	1404	331.26	2,394.3	S	-	EMP
					04-14-2000	0927	331.35	2,394.2	S	-	EMP
					05-08-2000	1419	331.40	2,394.2	S	-	EMP
					06-06-2000	1451	331.35	2,394.2	S	-	EMP
					07-06-2000	1541	331.29	2,394.3	S	-	EMP
					08-29-2000	0924	331.34	2,394.3	S	-	EMP
					09-19-2000	0740	331.29	2,394.3	S	-	EMP
					10-11-2000	0922	331.45	2,394.2	S	-	EMP
					11-14-2000	0840	331.26	2,394.3	S	-	EMP
					12-05-2000	0901	331.32	2,394.3	S	-	EMP
					01-09-2001	0818	331.21	2,394.4	S	-	EMP
					02-07-2001	0831	331.25	2,394.4	S	-	EMP
					03-27-2001	1207	331.39	2,394.2	S	-	EMP
					04-18-2001	0744	331.22	2,394.4	S	-	EMP
					05-24-2001	0935	331.32	2,394.3	S	-	EMP
					06-14-2001	1207	331.40	2,394.2	S	-	EMP
					07-25-2001	1340	331.28	2,394.3	S	-	EMP
					08-23-2001	1256	331.23	2,394.4	S	-	EMP
					09-17-2001	1412	331.22	2,394.4	S	-	EMP
					10-23-2001	0755	331.23	2,394.4	S	-	EMP
					11-09-2001	1247	331.22	2,394.4	S	-	EMP
					12-13-2001	1122	331.29	2,394.3	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
CF-3	364105116302601	Cind-R-Lite Well	2,725.6	-3.20	01-09-2002	0901	331.25	2,394.4	S	-	EMP
					02-06-2002	1203	331.33	2,394.3	S	-	EMP
					03-25-2002	1121	331.33	2,394.3	S	-	EMP
					04-22-2002	0908	331.31	2,394.3	S	-	EMP
					05-02-2002	1427	331.29	2,394.3	S	-	EMP
					06-20-2002	0846	331.28	2,394.3	S	-	EMP
					07-03-2002	1135	331.32	2,394.3	S	-	EMP
					08-26-2002	1159	331.22	2,394.4	S	-	EMP
					09-24-2002	0707	331.22	2,394.4	S	-	EMP
					10-25-2002	0710	331.20	2,394.4	S	-	EMP
					11-22-2002	0610	331.21	2,394.4	S	-	EMP
					12-05-2002	0714	331.24	2,394.4	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
JF-1	365116116233801	UE-25 WT 15	3,553.8	0.18	01-11-2000	1003	1,160.86	2,392.9	S	-	SCP
					02-09-2000	1406	1,160.81	2,393.0	S	-	SCP
					03-14-2000	1124	1,161.03	2,392.8	S	-	SCP
					04-11-2000	1349	1,161.02	2,392.8	S	-	SCP
					05-18-2000	1328	1,161.02	2,392.8	S	-	SCP
					06-07-2000	1416	1,160.81	2,393.0	S	-	SCP
					07-26-2000	1627	1,160.70	2,393.1	S	-	SCP
					08-09-2000	1047	1,160.87	2,392.9	S	-	SCP
					09-06-2000	1056	1,160.96	2,392.8	S	-	SCP
					10-17-2000	1252	1,160.98	2,392.8	S	-	SCP
					11-09-2000	1141	1,160.45	2,393.4	V	-	EMP
					11-20-2000	1304	1,161.04	2,392.8	V	-	SCP
					12-06-2000	1114	1,160.96	2,392.8	V	-	EMP
					12-26-2000	1440	1,160.88	2,392.9	V	-	SCP
					01-04-2001	1030	1,160.90	2,392.9	S	-	SCP
					02-08-2001	1106	1,160.62	2,393.2	V	-	EMP
					02-21-2001	1311	1,160.88	2,392.9	V	-	SCP
					03-15-2001	1124	1,160.82	2,393.0	V	-	SCP
					04-04-2001	1201	1,160.72	2,393.1	V	-	SCP
					04-21-2001	1052	1,160.63	2,393.2	V	-	EMP
					05-10-2001	1021	1,160.70	2,393.1	V	-	SCP
					05-16-2001	1411	1,160.54	2,393.3	V	-	EMP
					06-15-2001	1234	1,160.80	2,393.0	V	-	EMP
					06-19-2001	1216	1,160.74	2,393.1	V	-	SCP
					07-20-2001	1044	1,160.69	2,393.1	V	-	EMP
					08-03-2001	1020	1,160.80	2,393.0	V	-	EMP
					08-07-2001	1216	1,160.87	2,392.9	V	-	HRC
					09-18-2001	0847	1,160.79	2,393.0	V	-	EMP
					10-12-2001	1051	1,161.01	2,392.8	V	-	EMP
					10-30-2001	1210	1,160.80	2,393.0	V	-	HRC

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
JF-1	365116116233801	UE-25 WT 15	3,553.8	0.18	11-26-2001	1039	1,160.78	2,393.0	V	-	EMP
					12-11-2001	1139	1,160.54	2,393.3	V	-	EMP
					01-16-2002	1234	1,160.50	2,393.3	S	-	EMP
					02-11-2002	1116	1,160.79	2,393.0	V	-	EMP
					02-12-2002	1210	1,160.72	2,393.1	V	-	HRC
					03-21-2002	1233	1,160.78	2,393.0	V	-	EMP
					04-29-2002	1044	1,160.66	2,393.1	V	-	EMP
					05-07-2002	1151	1,160.60	2,393.2	V	-	HRC
					05-23-2002	1211	1,160.62	2,393.2	V	-	EMP
					06-19-2002	1123	1,160.48	2,393.3	V	-	EMP
					07-10-2002	1039	1,160.70	2,393.1	V	-	EMP
					08-14-2002	1100	1,160.44	2,393.4	S	-	EMP
					08-22-2002	1320	1,160.80	2,393.0	V	-	HRC
					09-23-2002	1112	1,160.58	2,393.2	V	-	EMP
					10-10-2002	1334	1,160.42	2,393.4	V	-	EMP
					10-16-2002	1237	1,160.65	2,393.2	V	-	HRC
					11-30-2002	1127	1,160.47	2,393.3	V	-	EMP
					12-12-2002	1542	1,160.49	2,393.3	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
JF-2	364945116235001	UE-25 WT 13	3,387.5	1.00	01-11-2000	1047	994.83	2,392.7	S	-	SCP
					02-09-2000	1444	994.67	2,392.8	S	-	SCP
					03-27-2000	1256	994.77	2,392.7	S	-	SCP
					04-11-2000	1417	994.99	2,392.5	S	-	SCP
					05-23-2000	1206	994.69	2,392.8	S	-	SCP
					06-20-2000	1102	994.86	2,392.6	S	-	SCP
					07-31-2000	0911	994.78	2,392.7	S	-	SCP
					08-09-2000	1119	994.72	2,392.8	S	-	SCP
					09-28-2000	1433	994.82	2,392.7	S	-	SCP
					10-24-2000	1539	995.17	2,392.3	V	-	SCP
					11-09-2000	1217	994.30	2,393.2	V	-	EMP
					11-20-2000	1346	995.24	2,392.3	V	-	SCP
					12-06-2000	1141	994.79	2,392.7	V	-	EMP
					12-29-2000	1632	994.96	2,392.5	V	-	SCP
					01-04-2001	1319	994.69	2,392.8	S	-	SCP
					02-08-2001	1136	994.30	2,393.2	V	-	EMP
					02-27-2001	1227	994.96	2,392.5	V	-	SCP
					03-15-2001	1200	995.04	2,392.5	V	-	SCP
					04-20-2001	0940	994.33	2,393.2	V	-	EMP
					04-26-2001	0958	994.95	2,392.6	V	-	SCP
					05-10-2001	1100	994.85	2,392.6	V	-	SCP
					05-16-2001	1445	994.44	2,393.1	V	-	EMP
					06-15-2001	1155	994.59	2,392.9	V	-	EMP
					06-19-2001	1258	994.54	2,393.0	V	-	SCP
					07-20-2001	1128	994.49	2,393.0	V	-	EMP
					08-03-2001	0908	994.67	2,392.8	V	-	EMP
					08-09-2001	1236	994.93	2,392.6	V	-	HRC
					09-18-2001	0956	994.63	2,392.9	V	-	EMP
					10-12-2001	1006	994.78	2,392.7	V	-	EMP
					11-26-2001	1151	994.63	2,392.9	V	-	EMP
					12-11-2001	1053	994.55	2,393.0	V	-	EMP
					12-18-2001	1039	995.09	2,392.4	V	-	HRC
					01-10-2002	1214	995.07	2,392.4	V	-	HRC

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
JF-2a	364938116252102	UE-25 p1 PTH	3,655.5	0.63	01-18-2000	1036	1,185.19	2,470.3	S	-	SCP
					02-03-2000	1306	1,185.17	2,470.3	S	-	SCP
					03-27-2000	1158	1,184.71	2,470.8	S	-	SCP
					04-18-2000	1508	1,184.78	2,470.7	S	-	SCP
					05-23-2000	1108	1,184.57	2,470.9	S	-	SCP
					06-20-2000	1014	1,184.69	2,470.8	S	-	SCP
					07-26-2000	1525	1,184.39	2,471.1	S	-	SCP
					08-23-2000	1248	1,184.65	2,470.8	S	-	SCP
					09-06-2000	1457	1,184.53	2,471.0	S	-	SCP
					10-25-2000	1320	1,184.67	2,470.8	V	-	SCP
					11-09-2000	1105	1,185.42	2,470.1	V	-	EMP
					11-22-2000	1006	1,184.64	2,470.9	V	-	SCP
					12-06-2000	1043	1,184.84	2,470.7	V	-	EMP
					12-29-2000	1518	1,184.57	2,470.9	V	-	SCP
					01-30-2001	1340	1,184.66	2,470.8	V	-	SCP
					02-08-2001	1034	1,184.45	2,471.0	V	-	EMP
					02-21-2001	1440	1,184.52	2,471.0	V	-	SCP
					03-22-2001	1336	1,184.41	2,471.1	V	-	SCP
					04-20-2001	1015	1,184.45	2,471.0	V	-	EMP
					04-25-2001	1036	1,184.60	2,470.9	V	-	SCP
					05-16-2001	1331	1,184.36	2,471.1	V	-	EMP
					05-21-2001	1138	1,184.74	2,470.8	V	-	SCP
					06-15-2001	0941	1,184.57	2,470.9	V	-	EMP
					06-18-2001	1007	1,184.71	2,470.8	V	-	SCP
					07-20-2001	0952	1,184.55	2,471.0	V	-	EMP
					07-26-2001	1237	1,184.48	2,471.0	V	-	HRC
					08-03-2001	0945	1,184.59	2,470.9	V	-	EMP
					09-18-2001	0804	1,184.36	2,471.1	V	-	EMP
					10-24-2001	0802	1,184.62	2,470.9	V	-	EMP
					11-26-2001	1118	1,184.48	2,471.0	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
JF-2a	364938116252102	UE-25 p1 PTH	3,655.5	0.63	12-11-2001	1139	1,184.33	2,471.2	V	-	HRC
					12-11-2001	1227	1,184.27	2,471.2	V	-	EMP
					01-17-2002	1548	1,184.27	2,471.2	V	-	EMP
					02-11-2002	1030	1,184.52	2,471.0	V	-	EMP
					02-20-2002	1102	1,184.58	2,470.9	V	-	HRC
					03-21-2002	1152	1,184.47	2,471.0	V	-	EMP
					04-29-2002	0958	1,184.29	2,471.2	V	-	EMP
					04-30-2002	1126	1,184.35	2,471.2	V	-	HRC
					05-23-2002	1253	1,184.38	2,471.1	V	-	EMP
					06-19-2002	1159	1,184.55	2,471.0	V	-	EMP
					07-10-2002	1143	1,184.98	2,470.5	V	-	EMP
					08-08-2002	1531	1,184.84	2,470.7	V	-	EMP
					09-23-2002	1450	1,184.50	2,471.0	V	-	EMP
					09-24-2002	1317	1,184.65	2,470.8	V	-	HRC
					10-10-2002	1249	1,184.34	2,471.2	V	-	EMP
					11-18-2002	1501	1,184.72	2,470.8	V	-	EMP
					11-26-2002	1042	1,184.97	2,470.5	V	-	HRC
					12-05-2002	1120	1,184.62	2,470.9	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
J-13	364828116234001	J-13 WW	3,317.9	1.11	01-19-2000	0846	927.86	2,390.0	S	-	SCP
					02-10-2000	0837	927.54	2,390.4	S	-	SCP
					03-22-2000	0836	927.85	2,390.0	S	-	SCP
					04-25-2000	0827	927.85	2,390.0	S	-	SCP
					06-21-2000	0840	927.81	2,390.1	S	-	SCP
				1.08	07-31-2000	0843	927.70	2,390.2	S	-	SCP
					08-09-2000	0912	927.70	2,390.2	S	-	SCP
					09-27-2000	0910	927.89	2,390.0	V	-	SCP
					10-27-2000	1020	927.58	2,390.3	V	-	SCP
					11-09-2000	1248	926.90	2,391.0	V	-	EMP
					11-30-2000	0852	927.81	2,390.1	V	-	SCP
					12-06-2000	1208	927.43	2,390.5	V	-	EMP
					12-29-2000	1710	927.57	2,390.3	V	-	SCP
					01-30-2001	0822	926.94	2,391.0	V	-	SCP
					02-08-2001	1204	927.01	2,390.9	V	-	EMP
					02-27-2001	0936	927.63	2,390.3	V	-	SCP
					03-27-2001	0904	927.67	2,390.2	V	-	SCP
					04-30-2001	0819	927.79	2,390.1	V	-	SCP
					05-17-2001	0828	927.59	2,390.3	V	-	SCP
					05-23-2001	1812	927.15	2,390.8	V	-	EMP
					06-12-2001	0823	927.57	2,390.3	V	-	SCP
					06-15-2001	1327	927.31	2,390.6	V	-	EMP
					07-20-2001	0917	927.26	2,390.6	V	-	EMP
					08-03-2001	0830	927.38	2,390.5	V	-	EMP
					09-11-2001	0818	927.77	2,390.1	V	-	HRC
					09-18-2001	0928	927.45	2,390.4	V	-	EMP
					10-12-2001	0937	927.64	2,390.3	V	-	EMP
					11-26-2001	0945	927.61	2,390.3	V	-	EMP
					12-11-2001	0832	927.18	2,390.7	V	-	EMP
					12-11-2001	0910	927.41	2,390.5	V	-	HRC

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
J-13	364828116234001	J-13 WW	3,317.9	1.08	01-17-2002	1617	932.14	2,385.8	V	P	EMP
					02-11-2002	1147	932.40	2,385.5	V	P	EMP
					02-22-2002	0933	927.93	2,390.0	V	-	EMP
					03-21-2002	0859	927.77	2,390.1	V	-	HRC
					03-21-2002	1510	927.64	2,390.3	V	-	EMP
					04-29-2002	1310	927.46	2,390.4	V	-	EMP
					05-23-2002	1013	927.50	2,390.4	V	-	EMP
					05-23-2002	1112	927.60	2,390.3	V	-	HRC
					06-19-2002	1042	927.30	2,390.6	V	-	EMP
					07-10-2002	1218	927.46	2,390.4	V	-	EMP
					08-08-2002	1440	927.40	2,390.5	V	-	EMP
					09-23-2002	1535	927.26	2,390.6	V	-	EMP
					09-28-2002	1017	927.38	2,390.5	V	-	HRC
					10-10-2002	1207	927.15	2,390.8	V	-	EMP
					11-18-2002	1405	927.43	2,390.5	V	-	EMP
					11-26-2002	0926	927.68	2,390.2	V	-	HRC
					12-05-2002	1024	927.35	2,390.6	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
J-11	364706116170601	J-11 WW	3,442.8	2.11	01-19-2000	0928	1,040.45	2,402.4	S	-	SCP
					02-09-2000	1530	1,040.17	2,402.6	S	-	SCP
					03-09-2000	1400	1,040.53	2,402.3	S	-	SCP
					04-19-2000	1533	1,040.45	2,402.4	S	-	SCP
					05-15-2000	0800	1,040.33	2,402.5	S	-	SCP
					06-20-2000	1134	1,040.40	2,402.4	S	-	SCP
					07-13-2000	0924	1,040.48	2,402.3	S	-	SCP
					08-23-2000	1529	1,040.37	2,402.4	S	-	SCP
					09-27-2000	1425	1,040.44	2,402.4	S	-	SCP
					10-30-2000	1638	1,040.24	2,402.6	V	-	SCP
					11-09-2000	1337	1,039.56	2,403.2	V	-	EMP
					11-30-2000	1431	1,040.44	2,402.4	V	-	SCP
					12-06-2000	1328	1,040.12	2,402.7	V	-	EMP
					12-29-2000	1855	1,040.32	2,402.5	V	-	SCP
					01-24-2001	0919	1,040.19	2,402.6	S	-	SCP
					02-08-2001	1318	1,039.77	2,403.0	V	-	EMP
					02-21-2001	1531	1,040.44	2,402.4	V	-	SCP
					03-27-2001	1447	1,040.29	2,402.5	V	-	SCP
					04-20-2001	1140	1,039.83	2,403.0	V	-	EMP
					04-26-2001	1102	1,040.37	2,402.4	V	-	SCP
					05-01-2001	1410	1,039.78	2,403.0	V	-	EMP
					05-30-2001	1315	1,040.41	2,402.4	V	-	SCP
					06-15-2001	0845	1,040.09	2,402.7	V	-	EMP
					06-18-2001	1347	1,040.39	2,402.4	V	-	SCP
					07-20-2001	0825	1,039.96	2,402.8	V	-	EMP
					08-03-2001	0754	1,040.08	2,402.7	V	-	EMP
					08-15-2001	1242	1,040.40	2,402.4	V	-	HRC
					09-18-2001	1131	1,040.09	2,402.7	V	-	EMP
					10-12-2001	0854	1,040.38	2,402.4	V	-	EMP
					11-26-2001	1418	1,040.15	2,402.6	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
J-11	364706116170601	J-11 WW	3,442.8	2.11	12-11-2001	0753	1,039.96	2,402.8	V	-	EMP
					12-12-2001	1256	1,040.50	2,402.3	V	-	HRC
					01-16-2002	1111	1,040.20	2,402.6	S	-	EMP
					02-11-2002	1316	1,040.56	2,402.2	V	-	EMP
					03-21-2002	1059	1,040.56	2,402.2	V	-	HRC
					03-21-2002	1434	1,040.47	2,402.3	V	-	EMP
					04-29-2002	1354	1,040.31	2,402.5	V	-	EMP
					05-23-2002	1213	1,040.43	2,402.4	V	-	HRC
					05-23-2002	1342	1,040.31	2,402.5	V	-	EMP
					06-19-2002	1239	1,040.18	2,402.6	V	-	EMP
					07-10-2002	1434	1,040.35	2,402.4	V	-	EMP
					08-14-2002	0712	1,040.20	2,402.6	S	-	EMP
					09-23-2002	1627	1,040.20	2,402.6	V	-	EMP
					09-28-2002	1414	1,040.28	2,402.5	V	-	HRC
					10-10-2002	1422	1,040.16	2,402.6	V	-	EMP
					11-18-2002	1603	1,040.51	2,402.3	V	-	EMP
					11-21-2002	1211	1,040.67	2,402.1	V	-	HRC
					12-13-2002	0709	1,040.32	2,402.5	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
J-12	364554116232401	J-12 WW	3,128.4	3.95	01-11-2000	1328	739.76	2,388.6	S	-	SCP
					02-09-2000	1208	739.77	2,388.6	S	-	SCP
					03-22-2000	0918	740.09	2,388.3	S	-	SCP
					04-25-2000	0758	740.06	2,388.3	S	-	SCP
					05-25-2000	0932	739.79	2,388.6	S	-	SCP
					06-21-2000	0815	740.02	2,388.4	S	-	SCP
					07-31-2000	0812	739.98	2,388.4	S	-	SCP
					08-09-2000	0842	740.02	2,388.4	S	-	SCP
					09-27-2000	0825	740.03	2,388.4	V	-	SCP
					10-27-2000	0938	739.80	2,388.6	V	-	SCP
					11-09-2000	1447	740.54	2,387.9	V	-	EMP
					11-30-2000	0818	740.06	2,388.3	V	-	SCP
					12-06-2000	1235	740.00	2,388.4	V	-	EMP
					12-29-2000	1748	739.80	2,388.6	V	-	SCP
					01-04-2001	1354	739.80	2,388.6	S	-	SCP
					02-08-2001	1244	739.93	2,388.5	V	-	EMP
					02-27-2001	0859	739.92	2,388.5	V	-	SCP
					03-27-2001	0828	739.97	2,388.4	V	-	SCP
					04-20-2001	0905	739.85	2,388.6	V	-	EMP
					04-26-2001	0843	739.82	2,388.6	V	-	SCP
					05-21-2001	0954	739.96	2,388.4	V	-	SCP
					05-23-2001	1732	739.78	2,388.6	V	-	EMP
					06-15-2001	1122	739.98	2,388.4	V	-	EMP
					06-19-2001	0926	739.90	2,388.5	V	-	SCP
					07-20-2001	1202	739.83	2,388.6	V	-	EMP
					08-03-2001	1118	739.91	2,388.5	V	-	EMP
					08-15-2001	1009	739.89	2,388.5	V	-	HRC
					09-18-2001	1038	739.91	2,388.5	V	-	EMP
					10-12-2001	1133	740.08	2,388.3	V	-	EMP
					11-26-2001	1228	740.04	2,388.4	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
J-12	364554116232401	J-12 WW	3,128.4	3.95	12-11-2001	0908	739.76	2,388.6	V	-	EMP
					12-11-2001	0947	739.78	2,388.6	V	-	HRC
					01-16-2002	1530	739.81	2,388.6	S	-	EMP
					02-11-2002	1248	739.78	2,388.6	V	-	EMP
					03-21-2002	0937	739.96	2,388.4	V	-	HRC
					03-21-2002	1319	739.85	2,388.6	V	-	EMP
					04-29-2002	1227	739.81	2,388.6	V	-	EMP
					05-23-2002	1025	739.89	2,388.5	V	-	HRC
					05-23-2002	1049	739.84	2,388.6	V	-	EMP
					06-19-2002	0931	739.67	2,388.7	V	-	EMP
					07-10-2002	1349	739.76	2,388.6	V	-	EMP
					08-14-2002	0911	739.68	2,388.7	S	-	EMP
					09-23-2002	1217	739.76	2,388.6	V	-	EMP
					09-28-2002	1123	739.69	2,388.7	V	-	HRC
					10-10-2002	1130	739.65	2,388.8	V	-	EMP
					11-18-2002	1328	739.83	2,388.6	V	-	EMP
					11-26-2002	1209	739.87	2,388.5	V	-	HRC
					12-05-2002	0931	739.87	2,388.5	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
JF-3	364528116232201	JF-3 Well	3,098.3	2.27	01-26-2000	0845	709.92	2,388.4	V	-	EMP
					02-01-2000	1115	710.28	2,388.0	V	-	EMP
					03-23-2000	1530	709.90	2,388.4	V	-	EMP
					04-25-2000	1530	709.95	2,388.4	V	-	EMP
					05-08-2000	1644	709.91	2,388.4	V	-	EMP
					06-09-2000	0830	709.91	2,388.4	V	-	EMP
					07-11-2000	1615	709.95	2,388.4	V	-	EMP
					08-07-2000	1400	709.85	2,388.4	V	-	EMP
					09-21-2000	0745	709.66	2,388.6	V	-	EMP
					10-30-2000	1030	709.91	2,388.4	V	-	EMP
					11-09-2000	0915	709.64	2,388.7	V	-	EMP
					12-06-2000	1245	709.99	2,388.3	V	-	EMP
					01-24-2001	1000	709.68	2,388.6	V	-	EMP
					02-08-2001	0930	709.86	2,388.4	V	-	EMP
					03-27-2001	1700	709.83	2,388.5	V	-	EMP
					04-20-2001	0817	709.76	2,388.5	V	-	EMP
					05-17-2001	1016	709.75	2,388.6	V	-	EMP
					06-15-2001	1045	709.97	2,388.3	V	-	EMP
					07-20-2001	1230	709.76	2,388.5	V	-	EMP
					07-26-2001	0815	709.90	2,388.4	V	-	EMP
					08-03-2001	1145	709.81	2,388.5	V	-	EMP
					09-17-2001	1745	709.73	2,388.6	V	-	EMP
					10-12-2001	1200	710.01	2,388.3	V	-	EMP
					11-26-2001	1300	709.95	2,388.4	V	-	EMP
					12-11-2001	1000	709.66	2,388.6	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
JF-3	364528116232201	JF-3 Well	3,098.3	2.27	01-15-2002	1000	709.69	2,388.6	V	-	EMP
					02-11-2002	1215	709.87	2,388.4	V	-	EMP
					03-21-2002	1345	709.82	2,388.5	V	-	EMP
					04-29-2002	1145	709.81	2,388.5	V	-	EMP
					05-23-2002	1115	709.81	2,388.5	V	-	EMP
					06-19-2002	0830	709.66	2,388.6	V	-	EMP
					07-10-2002	1300	709.80	2,388.5	V	-	EMP
					08-08-2002	1615	709.80	2,388.5	V	-	EMP
					09-23-2002	1245	709.74	2,388.6	V	-	EMP
					10-09-2002	1130	709.69	2,388.6	V	-	EMP
					10-10-2002	1045	709.64	2,388.7	V	-	EMP
					10-28-2002	1145	709.72	2,388.6	V	-	EMP
					11-18-2002	1230	709.82	2,388.5	V	-	EMP
					12-05-2002	0845	709.84	2,388.5	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
RV-1	363815116175901	TW-5	3,056.0	1.6	01-21-2000	1217	677.96	2,378.0	V	-	EMP
					02-18-2000	0943	678.02	2,378.0	V	-	EMP
					03-23-2000	1113	677.87	2,378.1	V	-	EMP
					04-14-2000	1023	677.84	2,378.2	V	-	EMP
					05-09-2000	0944	677.80	2,378.2	V	-	EMP
					06-06-2000	1545	677.69	2,378.3	V	-	EMP
					07-05-2000	0939	677.73	2,378.3	V	-	EMP
					08-25-2000	0710	677.67	2,378.3	V	-	EMP
					09-19-2000	1230	677.62	2,378.4	V	-	EMP
					10-11-2000	0832	677.58	2,378.4	V	-	EMP
					11-08-2000	0827	677.74	2,378.3	V	-	EMP
					12-05-2000	1538	677.63	2,378.4	V	-	EMP
					01-09-2001	1337	677.64	2,378.4	V	-	EMP
					02-07-2001	0940	677.57	2,378.4	V	-	EMP
					03-26-2001	1209	677.46	2,378.5	V	-	EMP
					04-20-2001	1311	677.45	2,378.6	V	-	EMP
					05-11-2001	1258	677.41	2,378.6	V	-	EMP
					06-21-2001	0908	677.49	2,378.5	V	-	EMP
					07-17-2001	1706	677.32	2,378.7	V	-	EMP
					08-23-2001	1750	677.33	2,378.7	V	-	EMP
					09-10-2001	1820	677.29	2,378.7	V	-	EMP
					10-24-2001	0928	677.45	2,378.6	V	-	EMP
					11-16-2001	0832	677.39	2,378.6	V	-	EMP
					12-10-2001	1600	677.29	2,378.7	V	-	EMP
					01-09-2002	1422	677.30	2,378.7	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
RV-1	363815116175901	TW-5	3,056.0	1.6	02-06-2002	0815	677.39	2,378.6	V	-	EMP
					03-25-2002	0923	677.42	2,378.6	V	-	EMP
					04-18-2002	1353	677.34	2,378.7	V	-	EMP
					05-08-2002	0901	677.44	2,378.6	V	-	EMP
					06-14-2002	1558	677.45	2,378.6	V	-	EMP
					07-03-2002	1026	677.63	2,378.4	V	-	EMP
					08-09-2002	0955	677.71	2,378.3	V	-	EMP
					09-13-2002	0908	677.70	2,378.3	V	-	EMP
					10-10-2002	1640	677.56	2,378.4	V	-	EMP
					11-19-2002	0801	677.80	2,378.2	V	-	EMP
					12-12-2002	1230	677.73	2,378.3	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
MV-1	363530116021401	Army 1 WW	3,153.3	3.10	01-26-2000	0737	784.91	2,368.4	V	Z	EMP
					02-29-2000	0800	785.09	2,368.2	V	Z	EMP
					03-23-2000	1317	785.02	2,368.3	V	Z	EMP
					04-26-2000	0751	785.19	2,368.1	V	Z	EMP
					05-09-2000	0757	785.07	2,368.2	V	Z	EMP
					06-08-2000	0753	785.17	2,368.1	V	Z	EMP
					07-11-2000	0807	785.19	2,368.1	V	Z	EMP
					08-18-2000	0806	785.22	2,368.1	V	Z	EMP
					09-20-2000	0805	785.09	2,368.2	V	Z	EMP
					10-12-2000	0752	785.34	2,368.0	V	Z	EMP
					11-09-2000	0759	785.26	2,368.0	V	Z	EMP
					12-06-2000	0805	785.39	2,367.9	V	Z	EMP
					01-10-2001	0758	785.08	2,368.2	V	Z	EMP
					02-15-2001	0811	785.36	2,367.9	V	Z	EMP
					03-28-2001	0801	785.07	2,368.2	V	Z	EMP
					04-19-2001	0748	786.68	2,366.6	V	Z	EMP
					05-24-2001	0810	789.69	2,363.6	V	Z	EMP
					06-24-2001	0750	786.27	2,367.0	V	Z	EMP
					07-23-2001	0835	786.54	2,366.8	V	Z	EMP
					08-20-2001	0753	786.35	2,367.0	V	Z	EMP
					09-10-2001	0806	786.19	2,367.1	V	Z	EMP
					10-22-2001	0815	786.15	2,367.2	V	Z	EMP
					11-26-2001	0824	785.81	2,367.5	V	Z	EMP
					12-10-2001	0802	785.52	2,367.8	V	Z	EMP
					01-14-2002	0834	786.04	2,367.3	V	Z	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
MV-1	363530116021401	Army 1 WW	3,153.3	3.10	02-11-2002	0822	786.37	2,366.9	V	Z	EMP
					03-25-2002	0759	786.54	2,366.8	V	Z	EMP
					04-29-2002	0814	786.57	2,366.7	V	Z	EMP
					05-13-2002	0823	786.83	2,366.5	V	Z	EMP
					06-24-2002	0747	786.99	2,366.3	V	Z	EMP
					07-29-2002	0755	786.82	2,366.5	V	Z	EMP
					08-26-2002	0827	786.70	2,366.6	V	Z	EMP
					09-23-2002	0844	786.69	2,366.6	V	Z	EMP
					10-28-2002	0841	786.51	2,366.8	V	Z	EMP
					11-12-2002	0755	786.85	2,366.4	V	Z	EMP
					12-09-2002	0838	785.88	2,367.4	V	Z	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-1	364141116351401	USGS Well NA-6 BGMW-10	2,627.9	1.7	01-26-2000	1025	269.68	2,358.2	S	-	EMP
					02-18-2000	1115	269.89	2,358.0	S	-	EMP
					03-24-2000	0833	269.65	2,358.2	S	-	EMP
					03-31-2000	--	269.84	2,358.1	R	-	PVT
					04-14-2000	0739	269.44	2,358.5	S	-	EMP
					05-08-2000	1313	269.68	2,358.2	S	-	EMP
					06-06-2000	1342	269.64	2,358.3	S	-	EMP
					06-30-2000	--	269.78	2,358.1	R	-	PVT
					07-06-2000	1258	269.69	2,358.2	S	-	EMP
					08-25-2000	1010	269.71	2,358.2	S	-	EMP
					09-19-2000	0828	269.61	2,358.3	S	-	EMP
					09-29-2000	--	269.84	2,358.1	R	-	PVT
					10-11-2000	1240	269.80	2,358.1	S	-	EMP
					11-08-2000	1135	269.61	2,358.3	S	-	EMP
					12-05-2000	0942	269.55	2,358.4	S	-	EMP
					12-22-2000	--	269.98	2,357.9	R	-	PVT
					01-09-2001	0908	269.51	2,358.4	S	-	EMP
					02-06-2001	1434	269.20	2,358.7	S	-	EMP
					03-27-2001	1257	269.73	2,358.2	S	-	EMP
					03-30-2001	--	269.96	2,357.9	R	-	PVT
					04-18-2001	0939	269.68	2,358.2	S	-	EMP
					05-18-2001	1226	269.65	2,358.2	S	-	EMP
					06-12-2001	--	269.96	2,357.9	R	-	NPS
					06-14-2001	0905	269.95	2,358.0	S	-	EMP
					07-19-2001	1135	269.74	2,358.2	S	-	EMP
					08-23-2001	1513	269.75	2,358.2	S	-	EMP
					09-10-2001	--	269.99	2,357.9	R	-	NPS
					09-11-2001	1105	269.74	2,358.2	S	-	EMP
					10-23-2001	1005	269.72	2,358.2	S	-	EMP
					11-08-2001	0952	269.73	2,358.2	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-1	364141116351401	USGS Well NA-6 BGMW-10	2,627.9	1.7	12-13-2001	1257	269.83	2,358.1	S	-	EMP
					12-31-2001	--	269.83	2,358.1	R	-	NPS
					01-09-2002	0942	269.59	2,358.3	S	-	EMP
					02-06-2002	1352	269.69	2,358.2	S	-	EMP
					03-27-2002	1045	269.75	2,358.2	S	-	EMP
					04-11-2002	--	269.85	2,358.0	R	-	NPS
					04-22-2002	1243	269.81	2,358.1	S	-	EMP
					05-02-2002	1234	269.82	2,358.1	S	-	EMP
					06-20-2002	0932	269.84	2,358.1	S	-	EMP
					07-03-2002	1511	269.71	2,358.2	S	-	EMP
					07-08-2002	--	269.95	2,358.0	R	-	NPS
					08-26-2002	1457	269.69	2,358.2	S	-	EMP
					09-24-2002	0914	269.77	2,358.1	S	-	EMP
					10-04-2002	--	269.92	2,358.0	R	-	NPS
					10-24-2002	1450	269.75	2,358.2	S	-	EMP
					11-12-2002	1047	269.99	2,357.9	S	-	EMP
					12-09-2002	1359	269.76	2,358.1	S	-	EMP
					12-18-2002	--	270.06	2,357.8	R	-	NPS

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-2	363830116241401	Airport Well	2,638.8	1.15	01-26-2000	0938	325.26	2,313.5	S	-	EMP
					02-22-2000	1000	325.42	2,313.4	S	-	EMP
					03-23-2000	1501	325.22	2,313.6	S	-	EMP
					04-13-2000	1137	325.24	2,313.6	S	-	EMP
					05-08-2000	1505	325.38	2,313.4	S	-	EMP
					06-09-2000	1342	325.17	2,313.6	S	-	EMP
					07-06-2000	1625	325.21	2,313.6	S	-	EMP
					08-25-2000	1318	325.28	2,313.5	S	-	EMP
					09-19-2000	1128	325.29	2,313.5	S	-	EMP
					10-11-2000	1446	325.52	2,313.3	S	-	EMP
					11-13-2000	1556	324.21	2,314.6	S	-	EMP
					12-05-2000	1353	325.25	2,313.6	S	-	EMP
					01-09-2001	1145	325.32	2,313.5	S	-	EMP
					02-07-2000	0905	325.12	2,313.7	S	-	EMP
					03-26-2001	1357	325.30	2,313.5	S	-	EMP
					04-18-2001	1111	325.35	2,313.4	S	-	EMP
					05-11-2001	1338	325.44	2,313.4	S	-	EMP
					06-14-2001	1248	325.57	2,313.2	S	-	EMP
					07-25-2001	1304	325.54	2,313.3	S	-	EMP
					08-23-2001	1231	325.51	2,313.3	S	-	EMP
					09-17-2001	1342	325.48	2,313.3	S	-	EMP
					10-24-2001	1052	325.65	2,313.2	S	-	EMP
					11-09-2001	1317	325.35	2,313.4	S	-	EMP
					12-13-2001	1155	325.56	2,313.2	S	-	EMP
					01-09-2002	0821	325.24	2,313.6	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-2	363830116241401	Airport Well	2,638.8	1.15	02-06-2002	1655	325.37	2,313.4	S	-	EMP
					03-25-2002	1053	325.58	2,313.2	S	-	EMP
					04-18-2002	1437	325.51	2,313.3	S	-	EMP
					05-02-2002	1447	325.52	2,313.3	S	-	EMP
					06-14-2002	1520	325.38	2,313.4	S	-	EMP
					07-03-2002	1604	325.20	2,313.6	S	-	EMP
					08-26-2002	1123	325.43	2,313.4	S	-	EMP
					09-12-2002	1200	325.62	2,313.2	S	-	EMP
					10-25-2002	0740	325.46	2,313.3	S	-	EMP
					11-12-2002	0942	325.71	2,313.1	S	-	EMP
					12-09-2002	1258	325.54	2,313.3	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-2a	363835116234001	NDOT Well	2,656.8	0.4	01-21-2000	1140	342.39	2,314.4	S	-	EMP
					02-18-2000	1014	342.22	2,314.6	S	-	EMP
					03-23-2000	1436	342.18	2,314.6	S	-	EMP
					04-13-2000	1116	342.30	2,314.5	S	-	EMP
					05-08-2000	1453	342.75	2,314.0	S	-	EMP
					06-08-2000	1421	341.97	2,314.8	S	-	EMP
					07-06-2000	1609	341.88	2,314.9	S	-	EMP
					08-07-2000	1631	342.55	2,314.2	S	-	EMP
					09-19-2000	1107	342.34	2,314.5	S	-	EMP
					10-11-2000	1509	342.89	2,313.9	S	-	EMP
					11-13-2000	1623	341.84	2,315.0	S	-	EMP
					12-05-2000	1324	341.81	2,315.0	V	-	EMP
					01-09-2001	1211	341.80	2,315.0	S	-	EMP
					02-07-2001	0922	341.57	2,315.2	S	-	EMP
					03-27-2001	1137	342.17	2,314.6	S	-	EMP
					04-18-2001	0716	342.15	2,314.6	S	-	EMP
					05-23-2001	1514	342.38	2,314.4	S	-	EMP
					06-14-2001	1330	342.58	2,314.2	S	-	EMP
					07-17-2001	1611	342.07	2,314.7	S	-	EMP
					08-23-2001	1210	342.49	2,314.3	S	-	EMP
					09-17-2001	1612	342.14	2,314.7	S	-	EMP
					10-22-2001	1455	342.20	2,314.6	S	-	EMP
					11-07-2001	1328	341.98	2,314.8	S	-	EMP
					12-10-2001	1505	341.07	2,315.7	S	-	EMP
					01-07-2002	1532	341.93	2,314.9	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-2a	363835116234001	NDOT Well	2,656.8	0.4	02-06-2002	1720	341.50	2,315.3	S	-	EMP
					03-25-2002	1030	341.91	2,314.9	S	-	EMP
					04-19-2002	1505	341.93	2,314.9	S	-	EMP
					05-02-2002	1523	341.92	2,314.9	S	-	EMP
					06-20-2002	1632	342.07	2,314.7	S	-	EMP
					07-03-2002	0821	342.58	2,314.2	S	-	EMP
					08-26-2002	1102	342.55	2,314.2	S	-	EMP
					09-12-2002	1134	342.58	2,314.2	S	-	EMP
					10-10-2002	1558	342.10	2,314.7	S	-	EMP
					11-12-2002	0919	342.18	2,314.6	S	-	EMP
					12-09-2002	1238	342.14	2,314.7	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-3a	363521116352501	Davidson Well	2,395.3	1.00	01-26-2000	1207	132.81	2,262.5	S	-	EMP
					02-22-2000	1113	132.70	2,262.6	S	-	EMP
					03-24-2000	0936	132.61	2,262.7	S	-	EMP
					04-13-2000	1247	132.59	2,262.7	S	-	EMP
					05-01-2000	1520	132.59	2,262.7	S	-	EMP
					06-07-2000	1615	132.89	2,262.4	S	-	EMP
					07-05-2000	1404	133.06	2,262.2	S	-	EMP
					08-28-2000	1659	133.29	2,262.0	S	-	EMP
					09-20-2000	1557	133.31	2,262.0	S	-	EMP
					10-11-2000	1343	133.43	2,261.9	S	-	EMP
					11-08-2000	1227	133.34	2,262.0	S	-	EMP
					12-07-2000	0941	133.33	2,262.0	S	-	EMP
					01-10-2001	0921	133.24	2,262.1	S	-	EMP
					02-06-2001	1153	133.01	2,262.3	S	-	EMP
					03-27-2001	1237	132.96	2,262.3	S	-	EMP
					04-19-2001	1600	132.82	2,262.5	S	-	EMP
					05-18-2001	1335	132.89	2,262.4	S	-	EMP
					06-14-2001	1445	132.99	2,262.3	S	-	EMP
					07-25-2001	1421	133.16	2,262.1	S	-	EMP
					08-24-2001	0951	133.30	2,262.0	S	-	EMP
					09-11-2001	1221	133.28	2,262.0	S	-	EMP
					10-23-2001	1204	133.36	2,261.9	S	-	EMP
					11-16-2001	1057	133.36	2,261.9	S	-	EMP
					12-13-2001	1047	133.29	2,262.0	S	-	EMP
					01-08-2002	0832	133.14	2,262.2	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-3a	363521116352501	Davidson Well	2,395.3	1.00	02-06-2002	1620	133.18	2,262.1	S	-	EMP
					03-25-2002	1214	133.23	2,262.1	S	-	EMP
					04-23-2002	0940	133.39	2,261.9	S	-	EMP
					05-01-2002	1507	133.35	2,262.0	S	-	EMP
					06-18-2002	1546	133.40	2,261.9	S	-	EMP
					07-02-2002	1646	133.49	2,261.8	S	-	EMP
					08-07-2002	0906	133.64	2,261.7	S	-	EMP
					09-11-2002	1501	133.64	2,261.7	S	-	EMP
					10-24-2002	1236	133.73	2,261.6	S	-	EMP
					11-07-2002	1041	133.77	2,261.5	S	-	EMP
					12-13-2002	0915	133.83	2,261.5	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-4a	363428116234701	Cooks East Well	2,477.8	1.0	01-21-2000	1059	117.69	2,360.1	S	-	EMP
					02-22-2000	1155	118.19	2,359.6	S	-	EMP
					03-24-2000	1023	118.34	2,359.5	S	-	EMP
					04-13-2000	1201	118.41	2,359.4	S	-	EMP
					05-01-2000	1443	118.51	2,359.3	S	-	EMP
					06-09-2000	0930	118.62	2,359.2	S	-	EMP
					07-05-2000	1333	118.59	2,359.2	S	-	EMP
					08-29-2000	0959	118.79	2,359.0	S	-	EMP
					09-20-2000	0902	118.73	2,359.1	S	-	EMP
					10-12-2000	1001	118.76	2,359.0	S	-	EMP
					11-13-2000	1536	118.99	2,358.8	S	-	EMP
					12-07-2000	0907	118.97	2,358.8	S	-	EMP
					01-10-2001	0852	119.06	2,358.7	S	-	EMP
					02-07-2001	1610	118.88	2,358.9	S	-	EMP
					03-26-2001	1410	119.16	2,358.6	S	-	EMP
					04-19-2001	1512	118.98	2,358.8	S	-	EMP
					05-11-2001	1400	119.11	2,358.7	S	-	EMP
					06-14-2001	1359	119.19	2,358.6	S	-	EMP
					07-17-2001	1550	119.20	2,358.6	S	-	EMP
					08-23-2001	1147	119.32	2,358.5	S	-	EMP
					09-17-2001	1315	119.36	2,358.4	S	-	EMP
					10-22-2001	1410	119.20	2,358.6	S	-	EMP
					11-07-2001	1248	119.35	2,358.4	S	-	EMP
					12-10-2001	1432	119.10	2,358.7	S	-	EMP
					01-07-2002	1621	119.13	2,358.7	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-4a	363428116234701	Cooks East Well	2,477.8	1.0	02-07-2002	0754	119.50	2,358.3	S	-	EMP
					03-25-2002	1312	119.59	2,358.2	S	-	EMP
					04-23-2002	1034	119.62	2,358.2	S	-	EMP
					05-08-2002	0715	119.60	2,358.2	S	-	EMP
					06-14-2002	1459	119.60	2,358.2	S	-	EMP
					07-03-2002	1627	119.63	2,358.2	S	-	EMP
					08-07-2002	0811	119.81	2,358.0	S	-	EMP
					09-11-2002	1530	119.77	2,358.0	S	-	EMP
					10-25-2002	0807	119.71	2,358.1	S	-	EMP
					11-07-2002	1116	119.68	2,358.1	S	-	EMP
					12-09-2002	1142	119.79	2,358.0	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-5	363310116294001	USBLM Well	2,376.4	0.0	01-26-2000	1231	128.50	2,247.9	S	-	EMP
					02-22-2000	1137	128.00	2,248.4	S	-	EMP
					03-24-2000	1000	128.61	2,247.8	S	-	EMP
					04-13-2000	1226	128.76	2,247.6	S	-	EMP
					05-01-2000	1544	127.85	2,248.6	S	-	EMP
					06-07-2000	1550	128.08	2,248.3	S	-	EMP
					07-05-2000	1433	128.11	2,248.3	S	-	EMP
					08-08-2000	1333	128.34	2,248.1	S	-	EMP
					09-20-2000	1532	128.54	2,247.9	S	-	EMP
					10-11-2000	1408	128.63	2,247.8	S	-	EMP
					11-08-2000	1250	128.70	2,247.7	S	-	EMP
					12-07-2000	1009	128.65	2,247.8	S	-	EMP
					01-03-2001	1529	128.59	2,247.8	S	-	EMP
					02-06-2001	1133	128.09	2,248.3	S	-	EMP
					03-27-2001	0920	127.67	2,248.7	S	-	EMP
					04-19-2001	1533	127.73	2,248.7	S	-	EMP
					05-23-2001	1435	127.99	2,248.4	S	-	EMP
					06-20-2001	1554	128.23	2,248.2	S	-	EMP
					07-25-2001	1503	128.47	2,247.9	S	-	EMP
					08-24-2001	1021	128.69	2,247.7	S	-	EMP
					09-17-2001	1452	128.88	2,247.5	S	-	EMP
					10-23-2001	1233	129.12	2,247.3	S	-	EMP
					11-16-2001	1031	129.16	2,247.2	S	-	EMP
					12-13-2001	1019	129.16	2,247.2	S	-	EMP
					01-17-2002	1351	129.05	2,247.4	S	-	EMP
					02-07-2002	0829	128.97	2,247.4	S	-	EMP
					03-25-2002	1243	128.92	2,247.5	S	-	EMP
					04-23-2002	1007	129.07	2,247.3	S	-	EMP
					05-01-2002	1541	129.09	2,247.3	S	-	EMP
					06-18-2002	1520	129.58	2,246.8	S	-	EMP
					07-02-2002	1629	129.74	2,246.7	S	-	EMP
					08-16-2002	0955	130.23	2,246.2	S	-	EMP
					09-11-2002	1405	130.56	2,245.8	S	-	EMP
					10-24-2002	1205	131.12	2,245.3	S	-	EMP
					11-07-2002	1000	131.25	2,245.2	S	-	EMP
					12-13-2002	0844	131.36	2,245.0	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-6	363213116133800	Tracer Well 3	2402.3	0.4	01-21-2000	1315	41.62	2,360.7	S	-	EMP
					02-18-2000	0800	41.77	2,360.5	S	-	EMP
					03-23-2000	1100	41.71	2,360.6	S	-	EMP
					04-26-2000	0845	41.69	2,360.6	S	-	EMP
					05-09-2000	0845	41.66	2,360.6	S	-	EMP
					06-08-2000	1600	41.60	2,360.7	S	-	EMP
					07-06-2000	0845	41.69	2,360.6	S	-	EMP
					08-09-2000	1415	41.68	2,360.6	S	-	EMP
					09-19-2000	1430	41.63	2,360.7	S	-	EMP
					09-21-2000	0915	41.60	2,360.7	S	-	EMP
					10-10-2000	1430	41.63	2,360.7	S	-	EMP
					11-06-2000	1415	41.62	2,360.7	S	-	EMP
					12-04-2000	1500	41.79	2,360.5	S	-	EMP
					01-30-2001	1200	41.87	2,360.4	S	-	EMP
					02-07-2001	1030	41.58	2,360.7	S	-	EMP
					03-26-2001	1030	41.74	2,360.6	S	-	EMP
					04-03-2001	1206	41.73	2,360.6	S	-	EMP
					04-19-2001	0841	41.67	2,360.6	S	-	EMP
					05-11-2001	1000	41.74	2,360.6	S	-	EMP
					05-24-2001	1046	41.74	2,360.6	S	-	EMP
					06-13-2001	1645	41.76	2,360.5	S	-	EMP
					07-17-2001	1715	41.69	2,360.6	S	-	EMP
					08-20-2001	0845	41.72	2,360.6	S	-	EMP
					09-10-2001	1715	41.73	2,360.6	S	-	EMP
					10-22-2001	1045	41.80	2,360.5	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-6	363213116133800	Tracer Well 3	2402.3	0.4	11-15-2001	1616	41.76	2,360.5	S	-	EMP
					12-07-2001	1445	41.90	2,360.4	S	-	EMP
					01-15-2002	1430	41.79	2,360.5	S	-	EMP
					02-06-2002	1015	41.85	2,360.4	S	-	EMP
					03-27-2002	0915	41.81	2,360.5	S	-	EMP
					04-18-2002	1245	41.85	2,360.4	S	-	EMP
					05-24-2002	1515	41.79	2,360.5	S	-	EMP
					06-19-2002	1430	41.69	2,360.6	S	-	EMP
					07-03-2002	0930	41.81	2,360.5	S	-	EMP
					08-09-2002	0845	41.84	2,360.5	S	-	EMP
					09-10-2002	1730	41.77	2,360.5	S	-	EMP
					10-11-2002	0915	41.85	2,360.4	S	-	EMP
					11-06-2002	1645	41.85	2,360.4	S	-	EMP
					12-12-2002	1115	41.86	2,360.4	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-7a	363009116302702	BlackmanWell	2,305.0	0.78	01-27-2000	1225	73.86	2,231.1	S	-	EMP
					02-22-2000	1236	73.23	2,231.8	S	-	EMP
					03-14-2000	1415	72.90	2,232.1	S	-	EMP
					03-17-2000	--	72.92	2,232.1	T	-	NDWR
					04-12-2000	1645	74.58	2,230.4	S	-	EMP
					05-01-2000	1608	76.08	2,228.9	S	-	EMP
					06-07-2000	1524	78.58	2,226.4	S	-	EMP
					07-05-2000	1459	79.48	2,225.5	S	-	EMP
					08-28-2000	1628	80.37	2,224.6	S	-	EMP
					09-20-2000	1514	80.49	2,224.5	S	-	EMP
					10-12-2000	0947	81.27	2,223.7	S	-	EMP
					10-17-2000	--	80.02	2,225.0	T	-	NDWR
					11-08-2000	1307	79.56	2,225.4	S	-	EMP
					12-07-2000	1028	77.84	2,227.2	S	-	EMP
					01-10-2001	1005	76.64	2,228.4	S	-	EMP
					02-06-2001	1116	75.57	2,229.4	S	-	EMP
					03-15-2001	--	75.66	2,229.3	T	-	NDWR
					03-27-2001	1305	76.45	2,228.6	S	-	EMP
					04-19-2001	1445	77.24	2,227.8	S	-	EMP
					05-23-2001	1415	79.73	2,225.3	S	-	EMP
					06-14-2001	1524	81.20	2,223.8	S	-	EMP
					07-25-2001	1230	82.60	2,222.4	S	-	EMP
					08-24-2001	1044	83.08	2,221.9	S	-	EMP
					09-17-2001	1512	83.48	2,221.5	S	-	EMP
					10-23-2001	1258	81.88	2,223.1	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-7a	363009116302702	Blackman Well	2,305.0	0.78	10-25-2001	--	82.68	2,222.3	T	-	NDWR
					11-16-2001	1012	80.89	2,224.1	S	-	EMP
					12-13-2001	1000	79.31	2,225.7	S	-	EMP
					01-08-2002	0908	78.05	2,227.0	S	-	EMP
					02-07-2002	0855	77.01	2,228.0	S	-	EMP
					03-07-2002	--	76.53	2,228.5	T	-	NDWR
					03-25-2002	1340	76.70	2,228.3	S	-	EMP
					04-29-2002	1544	78.28	2,226.7	S	-	EMP
					04-30-2002	1545	78.41	2,226.6	S	-	EMP
					05-01-2002	1605	78.41	2,226.6	S	-	EMP
					06-19-2002	1737	81.46	2,223.5	S	-	EMP
					07-02-2002	1610	82.02	2,223.0	S	-	EMP
					08-07-2002	0939	84.03	2,221.0	S	-	EMP
					09-11-2002	1321	84.52	2,220.5	S	-	EMP
					10-25-2002	0844	83.00	2,222.0	S	-	EMP
					10-29-2002	--	82.82	2,222.2	T	-	NDWR
					11-07-2002	0944	82.36	2,222.6	S	-	EMP
					12-13-2002	0942	80.61	2,224.4	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-8	362929116085701	Cherry Patch Well	2,394.3	0.38	01-21-2000	1406	34.88	2,359.4	S	-	EMP
					02-18-2000	0706	34.91	2,359.4	S	-	EMP
					03-23-2000	1010	34.91	2,359.4	S	-	EMP
					04-14-2000	1135	34.53	2,359.8	S	-	EMP
					05-09-2000	1041	34.70	2,359.6	S	-	EMP
					06-08-2000	1505	34.73	2,359.6	S	-	EMP
					07-06-2000	0754	34.94	2,359.4	S	-	EMP
					08-29-2000	0838	35.04	2,359.3	S	-	EMP
					09-19-2000	1350	36.10	2,358.2	S	-	EMP
					10-10-2000	1353	35.21	2,359.1	S	-	EMP
					11-06-2000	1344	35.13	2,359.2	S	-	EMP
					12-04-2000	1425	35.13	2,359.2	S	-	EMP
					01-09-2001	1440	35.06	2,359.2	S	-	EMP
					02-07-2001	1110	35.04	2,359.3	S	-	EMP
					03-15-2001	1122	35.02	2,359.3	S	-	EMP
					04-18-2001	1205	35.08	2,359.2	S	-	EMP
					05-17-2001	1323	35.22	2,359.1	S	-	EMP
					06-21-2001	1029	33.93	2,360.4	S	-	EMP
					07-25-2001	1656	34.11	2,360.2	S	-	EMP
					08-24-2001	0728	35.34	2,359.0	S	-	EMP
					09-10-2001	0844	35.33	2,359.0	S	-	EMP
					10-22-2001	1010	35.61	2,358.7	S	-	EMP
					11-16-2001	0737	35.34	2,359.0	S	-	EMP
					12-10-2001	0841	35.03	2,359.3	S	-	EMP
					01-07-2002	1441	34.98	2,359.3	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-8	362929116085701	Cherry Patch Well	2,394.3	0.38	02-07-2002	1314	35.23	2,359.1	S	-	EMP
					03-25-2002	0836	35.28	2,359.0	S	-	EMP
					04-22-2002	0819	35.30	2,359.0	S	-	EMP
					05-13-2002	0917	35.33	2,359.0	S	-	EMP
					06-19-2002	1614	35.47	2,358.8	S	-	EMP
				0.60	07-04-2002	1048	35.29	2,359.0	S	-	EMP
					08-09-2002	0751	35.46	2,358.8	S	-	EMP
					09-11-2002	0802	35.49	2,358.8	S	-	EMP
					10-28-2002	1019	34.29	2,360.0	S	R	EMP
					11-12-2002	0834	35.39	2,358.9	S	-	EMP
					12-09-2002	0909	35.28	2,359.0	S	-	EMP
AD-9	362848116264201	Gilgans North Well	2,264.8	-0.10	01-27-2000	1205	80.88	2,183.9	S	-	EMP
					02-22-2000	1214	79.79	2,185.0	S	-	EMP
					03-14-2000	1433	80.04	2,184.8	S	-	EMP
					04-12-2000	1601	85.67	2,179.1	S	-	EMP
					05-01-2000	1628	87.80	2,177.0	S	-	EMP
					06-07-2000	1502	91.61	2,173.2	S	-	EMP
					07-05-2000	1519	91.30	2,173.5	S	-	EMP
					08-28-2000	1602	84.78	2,180.0	S	-	EMP
					09-20-2000	1457	84.86	2,179.9	S	-	EMP
					10-12-2000	1029	84.18	2,180.6	S	-	EMP
					11-08-2000	1331	82.37	2,182.4	S	-	EMP
					12-07-2000	1052	81.60	2,183.2	S	-	EMP
					01-10-2001	--	--	--	--	W	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-9a	362835116264102	Amargosa Desert 9a (Water-level data in WRI 89-4101 (Kilroy, 1991) are listed with U.S. Geological Survey site identification 362835116264101 and a different height of measurement point.)	2,260.1	0.10	03-05-1964	--	54.27	2,205.8	R	-	WRI 89-4101
					06-18-1964	--	54.68	2,205.4	R	-	WRI 89-4101
					09-02-1964	--	55.18	2,204.9	R	-	WRI 89-4101
					11-04-1964	--	54.71	2,205.4	R	-	WRI 89-4101
					02-12-1965	--	54.56	2,205.5	R	-	WRI 89-4101
					05-20-1965	--	56.59	2,203.5	R	S	WRI 89-4101
					08-17-1965	--	56.71	2,203.4	R	S	WRI 89-4101
					11-23-1965	--	56.46	2,203.6	R	-	WRI 89-4101
					03-15-1966	--	56.64	2,203.5	R	S	WRI 89-4101
					06-16-1966	--	56.71	2,203.4	R	S	WRI 89-4101
					09-22-1966	--	57.66	2,202.4	R	R	WRI 89-4101
					01-31-1967	--	55.90	2,204.2	R	-	WRI 89-4101
					03-21-1967	--	56.82	2,203.3	R	-	WRI 89-4101
					09-29-1967	--	56.30	2,203.8	R	-	WRI 89-4101
				0.75	03-27-2001	1325	75.05	2,185.0	S	-	EMP
					04-19-2001	1428	75.47	2,184.6	S	-	EMP
					05-02-2001	1058	75.68	2,184.4	S	-	EMP
					06-14-2001	1546	76.64	2,183.5	S	-	EMP
					07-25-2001	1205	77.84	2,182.3	S	-	EMP
					08-24-2001	1100	78.02	2,182.1	S	-	EMP
					09-17-2001	1254	77.22	2,182.9	S	-	EMP
					10-23-2001	1315	78.00	2,182.1	S	-	EMP
					11-16-2001	1055	76.55	2,183.6	S	-	EMP
					12-13-2001	0937	75.87	2,184.2	S	-	EMP
					01-08-2002	0931	75.42	2,184.7	S	-	EMP
					02-07-2002	0914	75.07	2,185.0	S	-	EMP
					03-25-2002	1401	76.84	2,183.3	S	-	EMP
					04-22-2002	1408	77.75	2,182.4	S	-	EMP
					05-01-2002	1628	77.42	2,182.7	S	-	EMP
					06-24-2002	0958	81.09	2,179.0	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-9a	362835116264102	Amargosa Desert 9a	2,260.1	0.40	07-02-2002	1540	81.12	2,179.0	S	-	EMP
					07-11-2002	1350	79.75	2,180.4	S	-	EMP
					08-07-2002	1032	82.30	2,177.8	S	-	EMP
				0.75	09-13-2002	0958	80.79	2,179.3	S	-	EMP
					10-25-2002	0828	81.01	2,179.1	S	-	EMP
					11-07-2002	0920	79.24	2,180.9	S	-	EMP
					12-13-2002	1003	78.74	2,181.4	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-10	362525116274301	NA-9 Well	2,190.9	1.3	01-27-2000	1128	11.51	2,179.4	S	-	EMP
					02-18-2000	0621	11.59	2,179.3	S	-	EMP
					03-14-2000	1456	11.70	2,179.2	S	-	EMP
					04-12-2000	1532	11.76	2,179.1	S	-	EMP
					05-02-2000	0930	11.78	2,179.1	S	-	EMP
					06-07-2000	1420	12.00	2,178.9	S	-	EMP
					07-05-2000	1536	12.00	2,178.9	S	-	EMP
					08-28-2000	1529	12.14	2,178.8	S	-	EMP
					09-20-2000	1422	12.28	2,178.6	S	-	EMP
					10-11-2000	1631	12.30	2,178.6	S	-	EMP
					11-07-2000	1516	12.37	2,178.5	S	-	EMP
					12-07-2000	1255	12.42	2,178.5	S	-	EMP
					01-10-2001	1044	12.37	2,178.5	S	-	EMP
					02-06-2001	1047	12.39	2,178.5	S	-	EMP
					03-26-2001	1438	13.49	2,177.4	S	-	EMP
					04-19-2001	1400	13.16	2,177.7	S	-	EMP
					05-23-2001	1322	12.75	2,178.2	S	-	EMP
					06-21-2001	1358	12.94	2,178.0	S	-	EMP
					07-25-2001	1118	12.83	2,178.1	S	-	EMP
					08-24-2001	0808	13.31	2,177.6	S	-	EMP
					09-17-2001	1215	13.22	2,177.7	S	-	EMP
					10-23-2001	1343	13.31	2,177.6	S	-	EMP
					11-07-2001	1217	13.28	2,177.6	S	-	EMP
					12-13-2001	0907	14.15	2,176.8	S	-	EMP
					01-08-2002	0955	13.84	2,177.1	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-10	362525116274301	NA-9 Well	2,190.9	1.3	02-05-2002	1434	13.74	2,177.2	S	-	EMP
					03-19-2002	1435	13.60	2,177.3	S	-	EMP
					04-19-2002	1413	13.57	2,177.3	S	-	EMP
					05-01-2002	1400	13.54	2,177.4	S	-	EMP
					06-14-2002	1423	13.80	2,177.1	S	-	EMP
					07-02-2002	1510	13.73	2,177.2	S	-	EMP
					08-07-2002	0734	13.68	2,177.2	S	-	EMP
					09-11-2002	1612	13.86	2,177.0	S	-	EMP
					10-24-2002	1100	13.83	2,177.1	S	-	EMP
					11-07-2002	1142	13.81	2,177.1	S	-	EMP
					12-04-2002	1405	13.64	2,177.3	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-11	361954116181201	GS-03 Well	2,351.3	2.0	01-14-2000	0932	213.53	2,137.8	S	-	EMP
					02-17-2000	1110	213.02	2,138.3	S	-	EMP
					03-13-2000	1125	212.79	2,138.5	S	-	EMP
					04-12-2000	1229	212.53	2,138.8	S	-	EMP
					05-02-2000	1044	212.13	2,139.2	S	-	EMP
					06-07-2000	1036	211.79	2,139.5	S	-	EMP
					07-07-2000	0950	211.60	2,139.7	S	-	EMP
					08-24-2000	0936	211.72	2,139.6	S	-	EMP
					09-20-2000	1308	211.58	2,139.7	S	-	EMP
					10-12-2000	1119	211.92	2,139.4	S	-	EMP
					11-13-2000	1215	212.22	2,139.1	S	-	EMP
					12-07-2000	1635	212.26	2,139.0	S	-	EMP
					01-08-2001	1431	212.20	2,139.1	S	-	EMP
					02-06-2001	1002	212.04	2,139.3	S	-	EMP
					03-21-2001	1143	212.01	2,139.3	S	-	EMP
					04-17-2001	1341	211.76	2,139.5	S	-	EMP
					05-23-2001	1221	211.29	2,140.0	S	-	EMP
					06-13-2001	1130	210.91	2,140.4	S	-	EMP
					07-17-2001	1028	210.67	2,140.6	S	-	EMP
					08-02-2001	1519	210.60	2,140.7	S	-	EMP
					09-10-2001	1524	210.37	2,140.9	S	-	EMP
					10-24-2001	1449	210.51	2,140.8	S	-	EMP
					11-07-2001	1047	210.62	2,140.7	S	-	EMP
					12-10-2001	1121	210.37	2,140.9	S	-	EMP
					01-08-2002	1311	210.71	2,140.6	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-11	361954116181201	GS-03 Well	2,351.3	2.0	02-05-2002	1020	210.74	2,140.6	S	-	EMP
					03-19-2002	1034	210.64	2,140.7	S	-	EMP
					04-18-2002	1552	210.31	2,141.0	S	-	EMP
					05-01-2002	0947	210.18	2,141.1	S	-	EMP
					06-18-2002	0946	209.74	2,141.6	S	-	EMP
					07-02-2002	1044	209.72	2,141.6	S	-	EMP
					08-06-2002	1010	209.49	2,141.8	S	-	EMP
					09-10-2002	1252	209.39	2,141.9	S	-	EMP
					10-11-2002	1305	209.50	2,141.8	S	-	EMP
					11-06-2002	1135	209.80	2,141.5	S	-	EMP
					12-13-2002	1221	209.80	2,141.5	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-12	362014116133901	GS-01 Well	2,430.3	2.0	01-21-2000	0759	80.96	2,349.3	S	-	EMP
					02-17-2000	1027	80.94	2,349.4	S	-	EMP
					03-13-2000	1039	80.90	2,349.4	S	-	EMP
					04-12-2000	1158	80.88	2,349.4	S	-	EMP
					05-02-2000	1013	80.71	2,349.6	S	-	EMP
					06-07-2000	0952	80.89	2,349.4	S	-	EMP
					07-05-2000	1025	80.79	2,349.5	S	-	EMP
					08-24-2000	0847	80.94	2,349.4	S	-	EMP
					09-18-2000	1346	80.99	2,349.3	S	-	EMP
					10-10-2000	1036	80.98	2,349.3	S	-	EMP
					11-06-2000	1251	80.88	2,349.4	S	-	EMP
					12-04-2000	1228	80.83	2,349.5	S	-	EMP
					01-08-2001	1100	80.67	2,349.6	S	-	EMP
					02-06-2001	0930	80.64	2,349.7	S	-	EMP
					03-20-2001	1016	80.49	2,349.8	S	-	EMP
					04-17-2001	1251	80.74	2,349.6	S	-	EMP
					05-23-2001	1145	80.76	2,349.5	S	-	EMP
					06-13-2001	1049	80.79	2,349.5	S	-	EMP
					07-17-2001	0950	80.88	2,349.4	S	-	EMP
					08-23-2001	1057	80.90	2,349.4	S	-	EMP
					09-11-2001	1442	80.85	2,349.4	S	-	EMP
					10-24-2001	1523	80.90	2,349.4	S	-	EMP
					11-15-2001	1019	80.94	2,349.4	S	-	EMP
					12-10-2001	1050	80.88	2,349.4	S	-	EMP
					01-08-2002	1402	80.87	2,349.4	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-12	362014116133901	GS-01 Well	2,430.3	2.0	02-05-2002	0941	80.90	2,349.4	S	-	EMP
					03-15-2002	1342	80.85	2,349.4	S	-	EMP
					04-18-2002	1021	80.88	2,349.4	S	-	EMP
					05-01-2002	0735	80.89	2,349.4	S	-	EMP
					06-18-2002	0912	80.88	2,349.4	S	-	EMP
					07-02-2002	1012	80.90	2,349.4	S	-	EMP
					08-06-2002	0939	80.94	2,349.4	S	-	EMP
					09-10-2002	1214	80.92	2,349.4	S	-	EMP
					10-25-2002	1436	80.91	2,349.4	S	-	EMP
					11-22-2002	1041	80.91	2,349.4	S	-	EMP
					12-04-2002	1132	80.93	2,349.4	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-13	361724116324201	S-1 Well	2,703.2	2.0	01-28-2000	1430	372.34	2,330.9	S	-	EMP
					02-17-2000	1217	372.47	2,330.7	S	-	EMP
					03-13-2000	1340	372.55	2,330.6	S	-	EMP
					04-12-2000	1320	372.63	2,330.6	S	-	EMP
					05-02-2000	1135	372.59	2,330.6	S	-	EMP
					06-07-2000	1255	371.71	2,331.5	S	-	EMP
					07-07-2000	0911	371.53	2,331.7	S	-	EMP
					08-08-2000	1122	370.84	2,332.4	S	-	EMP
					09-20-2000	1150	371.13	2,332.1	S	-	EMP
					10-12-2000	1347	371.34	2,331.9	S	-	EMP
					11-13-2000	1303	371.29	2,331.9	S	-	EMP
					12-07-2000	1411	371.31	2,331.9	S	-	EMP
					01-03-2001	1323	371.30	2,331.9	S	-	EMP
					02-07-2001	1519	371.14	2,332.1	V	-	EMP
					03-21-2001	0907	371.29	2,331.9	S	-	EMP
					04-19-2001	1118	370.69	2,332.5	S	-	EMP
					05-02-2001	1151	371.08	2,332.1	S	-	EMP
					06-20-2001	1246	371.15	2,332.0	S	-	EMP
					07-17-2001	1154	370.76	2,332.4	S	-	EMP
					08-02-2001	1335	371.23	2,332.0	S	-	EMP
					09-10-2001	1208	371.01	2,332.2	S	-	EMP
					10-24-2001	1337	371.59	2,331.6	S	-	EMP
					11-15-2001	1225	370.47	2,332.7	S	-	EMP
					12-06-2001	1559	370.99	2,332.2	S	-	EMP
					01-17-2002	1210	370.85	2,332.4	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-13	361724116324201	S-1 Well	2,703.2	2.0	02-05-2002	1116	371.00	2,332.2	S	-	EMP
					03-19-2002	1157	370.96	2,332.2	S	-	EMP
					04-19-2002	1058	366.79	2,336.4	S	-	EMP
					05-01-2002	1055	366.42	2,336.8	S	-	EMP
					06-18-2002	1053	365.92	2,337.3	S	-	EMP
					07-02-2002	1147	366.12	2,337.1	S	-	EMP
					08-15-2002	1611	366.13	2,337.1	S	-	EMP
					09-10-2002	1427	365.94	2,337.3	S	-	EMP
					10-25-2002	0953	366.14	2,337.1	S	-	EMP
					11-06-2002	1450	366.42	2,336.8	S	-	EMP
					12-13-2002	1124	366.32	2,336.9	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-14	361817116244701	Death Valley Jct Well	2,041.8	0.7	01-28-2000	1059	2.77	2,039.0	S	-	EMP
					02-17-2000	1145	2.66	2,039.1	S	-	EMP
					03-13-2000	1300	2.56	2,039.2	S	-	EMP
					04-12-2000	1508	2.53	2,039.3	S	-	EMP
					05-04-2000	0939	2.50	2,039.3	S	-	EMP
					06-07-2000	1328	2.55	2,039.2	S	-	EMP
					07-07-2000	0715	2.69	2,039.1	S	-	EMP
					08-24-2000	1218	2.74	2,039.1	S	-	EMP
					09-20-2000	1354	2.78	2,039.0	S	-	EMP
					10-12-2000	1617	3.06	2,038.7	S	-	EMP
					11-13-2000	1439	2.51	2,039.3	S	-	EMP
					12-07-2000	1601	2.97	2,038.8	S	-	EMP
					01-08-2001	1531	2.63	2,039.2	S	-	EMP
					02-07-2001	1544	2.57	2,039.2	S	-	EMP
					03-21-2001	0814	2.68	2,039.1	S	-	EMP
					04-19-2001	1330	2.24	2,039.6	S	-	EMP
					05-02-2001	1358	2.21	2,039.6	S	-	EMP
					06-13-2001	1422	2.69	2,039.1	S	-	EMP
					07-17-2001	1430	2.91	2,038.9	S	-	EMP
					08-02-2001	1253	2.46	2,039.3	S	-	EMP
					09-10-2001	1443	2.96	2,038.8	S	-	EMP
					10-24-2001	1423	3.02	2,038.8	S	-	EMP
					11-07-2001	1143	2.68	2,039.1	S	-	EMP
					12-10-2001	1157	2.55	2,039.2	S	-	EMP
					01-08-2002	1022	2.49	2,039.3	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AD-14	361817116244701	Death Valley Jct Well	2,041.8	0.7	02-05-2002	1055	2.46	2,039.3	S	-	EMP
					03-19-2002	1122	2.46	2,039.3	S	-	EMP
					04-18-2002	1510	2.34	2,039.5	S	-	EMP
					05-01-2002	1320	2.41	2,039.4	S	-	EMP
					06-18-2002	1025	2.70	2,039.1	S	-	EMP
					07-02-2002	1122	2.88	2,038.9	S	-	EMP
					08-06-2002	1649	2.68	2,039.1	S	-	EMP
					09-10-2002	1358	2.83	2,039.0	S	-	EMP
					10-24-2002	1037	2.74	2,039.1	S	-	EMP
					11-06-2002	1426	2.64	2,039.2	S	-	EMP
					12-04-2002	1445	2.58	2,039.2	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-1	362858116195301	Rogers Spring Well	2,265.9	0.14	01-19-2000	1447	2.45	2,263.4	T	-	USFWS
					01-21-2000	1033	2.45	2,263.4	S	-	EMP
					02-17-2000	1705	2.37	2,263.5	S	-	EMP
					03-13-2000	1220	2.23	2,263.7	T	-	USFWS
					03-14-2000	1248	2.24	2,263.7	S	-	EMP
					04-13-2000	0929	2.36	2,263.5	S	-	EMP
					05-01-2000	1333	2.50	2,263.4	S	-	EMP
					05-10-2000	0858	2.58	2,263.3	T	-	USFWS
					06-08-2000	1245	2.99	2,262.9	S	-	EMP
					06-19-2000	1150	3.18	2,262.7	T	-	USFWS
					07-05-2000	1302	3.39	2,262.5	S	-	EMP
					07-17-2000	1020	3.54	2,262.4	T	-	USFWS
					08-24-2000	1314	3.35	2,262.6	S	-	EMP
					09-18-2000	1640	3.16	2,262.7	S	-	EMP
					09-27-2000	1052	3.15	2,262.8	T	-	USFWS
					10-10-2000	1226	3.05	2,262.8	S	-	EMP
					11-07-2000	0938	2.84	2,263.1	S	-	EMP
					11-15-2000	1602	2.73	2,263.2	T	-	USFWS
					12-07-2000	1130	2.56	2,263.3	S	-	EMP
					01-08-2001	1148	2.38	2,263.5	S	-	EMP
					01-22-2001	1519	2.32	2,263.6	T	-	USFWS
					02-07-2001	1319	2.24	2,263.7	S	-	EMP
					02-23-2001	0958	2.21	2,263.7	T	-	USFWS
					03-21-2001	1302	2.22	2,263.7	S	-	EMP
					04-16-2001	1150	2.31	2,263.6	T	-	USFWS
					04-17-2001	1815	2.32	2,263.6	S	-	EMP
					05-02-2001	0832	2.45	2,263.4	S	-	EMP
					06-20-2001	1322	3.46	2,262.4	T	-	USFWS
					06-21-2001	1320	3.49	2,262.4	S	-	EMP
					07-18-2001	0745	3.92	2,262.0	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-1	362858116195301	Rogers Spring Well	2,265.9	0.14	08-02-2001	1206	4.10	2,261.8	S	-	EMP
					08-30-2001	0844	4.23	2,261.6	T	-	USFWS
					09-10-2001	0918	3.96	2,261.9	S	-	EMP
					10-22-2001	1136	3.61	2,262.3	S	-	EMP
					11-15-2001	1544	3.22	2,262.7	S	-	EMP
					12-07-2001	0830	3.01	2,262.9	S	-	EMP
					12-18-2001	1155	2.90	2,263.0	T	-	USFWS
					01-08-2002	1639	2.76	2,263.1	S	-	EMP
					01-22-2002	1019	2.71	2,263.2	T	-	USFWS
					02-07-2002	1132	2.77	2,263.1	S	-	EMP
					03-15-2002	1120	2.64	2,263.3	S	-	EMP
					03-25-2002	1450	3.04	2,262.9	T	-	USFWS
					04-29-2002	1607	2.72	2,263.2	S	-	EMP
					05-01-2002	0816	3.73	2,262.2	T	-	USFWS
					05-07-2002	1505	2.80	2,263.1	S	-	EMP
					06-18-2002	1359	3.49	2,262.4	S	-	EMP
					07-04-2002	0801	3.77	2,262.1	S	-	EMP
					08-07-2002	1107	4.21	2,261.7	S	-	EMP
					09-11-2002	1225	4.08	2,261.8	S	-	EMP
					10-11-2002	1012	3.72	2,262.2	S	-	EMP
					11-06-2002	1357	3.29	2,262.6	S	-	EMP
					12-09-2002	1101	2.97	2,262.9	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-2	362755116190401	Five Springs Well	2,367.4	1.17	01-21-2000	1000	0.23	2,367.2	S	F	EMP
					02-17-2000	1641	0.24	2,367.2	S	F	EMP
					03-14-2000	1155	0.23	2,367.2	S	F	EMP
					04-13-2000	0852	0.23	2,367.2	S	F	EMP
					05-01-2000	1351	0.24	2,367.2	S	F	EMP
					06-08-2000	1153	0.22	2,367.2	S	F	EMP
					07-05-2000	1241	0.22	2,367.2	S	F	EMP
					08-24-2000	1418	0.25	2,367.2	S	F	EMP
					09-18-2000	1609	0.25	2,367.2	S	F	EMP
					10-10-2000	1247	0.25	2,367.2	S	F	EMP
					11-07-2000	1017	0.25	2,367.2	S	F	EMP
					12-07-2000	1152	0.25	2,367.2	S	F	EMP
					01-08-2001	1213	0.25	2,367.2	S	F	EMP
					02-07-2001	1245	0.25	2,367.2	S	F	EMP
					03-20-2001	1537	0.25	2,367.2	S	F	EMP
					04-17-2001	1741	0.25	2,367.2	S	F	EMP
					05-02-2001	0938	0.24	2,367.2	S	F	EMP
					06-21-2001	1240	0.25	2,367.2	S	F	EMP
					07-18-2001	0857	0.24	2,367.2	S	F	EMP
					08-02-2001	1115	0.26	2,367.1	S	F	EMP
					09-10-2001	1024	0.25	2,367.2	S	F	EMP
					10-22-2001	1251	0.25	2,367.2	S	F	EMP
					11-07-2001	1524	0.26	2,367.1	S	F	EMP
					12-10-2001	1330	0.26	2,367.1	S	F	EMP
					01-08-2002	1555	0.26	2,367.1	S	F	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-2	362755116190401	Five Springs Well	2,367.4	1.17	02-07-2002	1045	0.25	2,367.2	S	F	EMP
					03-15-2002	1040	0.26	2,367.1	S	F	EMP
					04-22-2002	1542	0.25	2,367.2	S	F	EMP
					05-07-2002	1532	0.25	2,367.2	S	F	EMP
					06-14-2002	1310	0.25	2,367.2	S	F	EMP
					07-04-2002	0840	0.25	2,367.2	S	F	EMP
					08-07-2002	1157	0.25	2,367.2	S	F	EMP
					09-11-2002	1136	0.29	2,367.1	S	F	EMP
					10-25-2002	1340	0.31	2,367.1	S	F	EMP
					11-07-2002	0827	0.31	2,367.1	S	F	EMP
					12-09-2002	1027	0.31	2,367.1	S	F	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-3	362555116205301	Garners Well	2,157.0	1.29	01-21-2000	0900	19.56	2,137.4	S	-	EMP
					02-17-2000	1548	19.22	2,137.8	S	-	EMP
					03-14-2000	0859	18.87	2,138.1	S	-	EMP
					04-13-2000	0714	18.61	2,138.4	S	-	EMP
					05-01-2000	1132	18.65	2,138.4	S	-	EMP
					06-08-2000	0915	19.01	2,138.0	S	-	EMP
					07-05-2000	1155	19.68	2,137.3	S	-	EMP
					08-24-2000	1252	20.62	2,136.4	S	-	EMP
					09-18-2000	1511	20.88	2,136.1	S	-	EMP
					10-10-2000	1200	21.01	2,136.0	S	-	EMP
					11-07-2000	0907	20.96	2,136.0	S	-	EMP
					12-07-2000	1238	20.72	2,136.3	S	-	EMP
					01-08-2001	1133	20.48	2,136.5	S	-	EMP
					02-07-2001	1221	20.21	2,136.8	S	-	EMP
					03-20-2001	1344	19.93	2,137.1	S	-	EMP
					04-19-2001	1037	19.80	2,137.2	S	-	EMP
					05-02-2001	1029	19.78	2,137.2	S	-	EMP
					06-21-2001	1100	20.02	2,137.0	S	-	EMP
					07-18-2001	0947	20.22	2,136.8	S	-	EMP
					08-20-2001	0959	20.58	2,136.4	S	-	EMP
					09-10-2001	1103	20.69	2,136.3	S	-	EMP
					10-22-2001	1340	20.90	2,136.1	S	-	EMP
					11-15-2001	1137	20.87	2,136.1	S	-	EMP
					12-10-2001	1230	20.74	2,136.3	S	-	EMP
					01-08-2002	1538	20.65	2,136.4	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-3	362555116205301	Garners Well	2,157.0	1.29	02-07-2002	1005	20.32	2,136.7	S	-	EMP
					03-15-2002	1141	20.01	2,137.0	S	-	EMP
					04-23-2002	1058	19.83	2,137.2	S	-	EMP
					05-07-2002	1450	19.81	2,137.2	S	-	EMP
					06-14-2002	1345	20.08	2,136.9	S	-	EMP
					07-04-2002	0902	20.39	2,136.6	S	-	EMP
					08-07-2002	1305	21.18	2,135.8	S	-	EMP
					09-11-2002	1028	21.54	2,135.5	S	-	EMP
					10-11-2002	1041	21.74	2,135.3	S	-	EMP
					11-06-2002	1336	21.82	2,135.2	S	-	EMP
					12-04-2002	1336	21.72	2,135.3	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-4	362532116172700	Devils Hole	2,359.9	--	01-04-2000	0732	2.11	2,357.8	R	-	NPS
					02-01-2000	0719	2.14	2,357.8	R	-	NPS
					03-01-2000	0823	2.06	2,357.8	R	-	NPS
					04-04-2000	0636	2.12	2,357.8	R	-	NPS
					04-19-2000	0920	2.19	2,357.7	R	-	NPS
					05-02-2000	0537	1.96	2,357.9	R	-	NPS
					05-16-2000	0516	2.02	2,357.9	R	-	NPS
					05-31-2000	0519	2.02	2,357.9	R	-	NPS
					07-05-2000	0622	2.01	2,357.9	R	-	NPS
					07-18-2000	0712	2.10	2,357.8	R	-	NPS
					08-01-2000	0616	2.01	2,357.9	R	-	NPS
					08-09-2000	0809	2.17	2,357.7	R	-	NPS
					08-15-2000	0604	2.05	2,357.8	R	-	NPS
					09-05-2000	0708	2.14	2,357.8	R	-	NPS
					09-12-2000	0657	2.12	2,357.8	R	-	NPS
					09-18-2000	0729	2.06	2,357.8	R	-	NPS
					10-02-2000	0759	2.03	2,357.9	R	-	NPS
					10-04-2000	0716	2.08	2,357.8	R	-	NPS
					10-16-2000	0754	2.06	2,357.8	R	-	NPS
					11-01-2000	0804	2.13	2,357.8	R	-	NPS
					11-20-2000	0803	2.23	2,357.7	R	-	NPS
					12-04-2000	0801	2.18	2,357.7	R	-	NPS
					12-18-2000	0934	2.24	2,357.7	R	-	NPS
					01-02-2001	0946	2.17	2,357.7	R	-	NPS
					01-17-2001	1200	2.13	2,357.8	R	-	NPS
					02-01-2001	0845	2.14	2,357.8	R	-	NPS
					02-16-2001	1002	2.14	2,357.8	R	-	NPS
					03-03-2001	0923	2.05	2,357.8	R	-	NPS
					03-12-2001	1030	2.18	2,357.7	R	-	NPS
					04-02-2001	0720	1.97	2,357.9	R	-	NPS

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-4	362532116172700	Devils Hole	2,359.9	--	04-17-2001	1102	2.09	2,357.8	R	-	NPS
					04-20-2001	1235	2.06	2,357.8	R	-	NPS
					05-01-2001	1008	2.01	2,357.9	R	-	NPS
					05-15-2001	1146	2.05	2,357.8	R	-	NPS
					06-02-2001	0903	2.13	2,357.8	R	-	NPS
										-	
					07-02-2001	0806	2.20	2,357.7	R	-	NPS
					07-16-2001	0720	2.20	2,357.7	R	-	NPS
					08-01-2001	0707	2.27	2,357.6	R	-	NPS
					08-02-2001	0708	2.20	2,357.7	R	-	NPS
					08-20-2001	0832	2.11	2,357.8	R	-	NPS
					09-05-2001	0955	2.11	2,357.8	R	-	NPS
					09-17-2001	0805	2.13	2,357.8	R	-	NPS
					10-01-2001	0900	2.23	2,357.7	R	-	NPS
					10-16-2001	0844	2.20	2,357.7	R	-	NPS
					11-01-2001	1401	2.12	2,357.8	R	-	NPS
					11-15-2001	1404	2.09	2,357.8	R	-	NPS
					12-03-2001	1152	2.08	2,357.8	R	-	NPS
					12-13-2001	1440	2.11	2,357.8	R	-	NPS
					01-02-2002	0821	2.07	2,357.8	R	-	NPS
					01-16-2002	0845	2.12	2,357.8	R	-	NPS
					02-01-2002	0913	2.14	2,357.8	R	-	NPS
					02-15-2002	0939	2.17	2,357.7	R	-	NPS
					03-04-2002	0939	2.16	2,357.7	R	-	NPS
					03-15-2002	0900	2.16	2,357.7	R	-	NPS
					04-01-2002	0925	2.09	2,357.8	R	-	NPS
					04-20-2002	0704	2.14	2,357.8	R	-	NPS
					05-01-2002	0729	2.10	2,357.8	R	-	NPS
					05-14-2002	1041	2.18	2,357.7	R	-	NPS
					06-01-2002	0854	2.05	2,357.8	R	-	NPS
					06-17-2002	0748	2.15	2,357.8	R	-	NPS

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-4	362532116172700	Devils Hole	2,359.9	--	07-01-2002	0746	2.13	2,357.8	R	-	NPS
					07-19-2002	0718	2.22	2,357.7	R	-	NPS
					08-02-2002	0809	2.15	2,357.8	R	-	NPS
					08-16-2002	0732	2.21	2,357.7	R	-	NPS
					09-01-2002	0809	2.25	2,357.6	R	-	NPS
					09-16-2002	0754	2.19	2,357.7	R	-	NPS
					10-04-2002	0855	2.30	2,357.6	R	-	NPS
					10-18-2002	0731	2.19	2,357.7	R	-	NPS
					11-01-2002	1228	2.16	2,357.7	R	-	NPS
					11-15-2002	0746	2.30	2,357.6	R	-	NPS
					12-01-2002	0957	2.19	2,357.7	R	-	NPS
					12-17-2002	0957	2.04	2,357.9	R	-	NPS

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-5	362529116171100	Devils Hole Well	2,404.1	0.9	01-14-2000	1032	47.99	2,356.1	S	-	EMP
					01-20-2000	1507	47.92	2,356.2	T	-	USFWS
					02-17-2000	1533	47.95	2,356.2	S	-	EMP
					03-14-2000	0938	48.00	2,356.1	S	-	EMP
					03-16-2000	1039	48.05	2,356.0	T	-	USFWS
					04-13-2000	0728	48.01	2,356.1	S	-	EMP
					05-01-2000	1244	48.06	2,356.0	S	-	EMP
					05-10-2000	1035	47.97	2,356.1	T	-	USFWS
					06-08-2000	0936	47.99	2,356.1	S	-	EMP
					07-05-2000	1138	48.07	2,356.0	S	-	EMP
					07-17-2000	1139	48.17	2,355.9	T	-	USFWS
					08-08-2000	1518	48.05	2,356.0	S	-	EMP
					09-18-2000	1451	48.08	2,356.0	S	-	EMP
					09-22-2000	1413	48.02	2,356.1	T	-	USFWS
					10-10-2000	1339	48.10	2,356.0	S	-	EMP
					11-06-2000	1321	48.03	2,356.1	S	-	EMP
					11-20-2000	0919	48.22	2,355.9	T	-	USFWS
					12-04-2000	1354	48.10	2,356.0	S	-	EMP
					01-08-2001	1303	48.00	2,356.1	S	-	EMP
					01-24-2001	0947	48.07	2,356.0	T	-	USFWS
					02-07-2001	1133	47.98	2,356.1	S	-	EMP
					02-23-2001	1145	48.03	2,356.1	T	-	USFWS
					03-15-2001	1243	48.09	2,356.0	S	-	EMP
					04-16-2001	1400	48.10	2,356.0	T	-	USFWS
					04-19-2001	1018	48.08	2,356.0	S	-	EMP
					05-17-2001	1348	48.05	2,356.0	S	-	EMP
					06-13-2001	1611	48.13	2,356.0	S	-	EMP
					06-21-2001	0645	48.15	2,356.0	T	-	USFWS

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-5	362529116171100	Devils Hole Well	2,404.1	0.9	07-18-2001	1006	48.20	2,355.9	S	-	EMP
					08-02-2001	0931	48.21	2,355.9	S	-	EMP
					08-30-2001	0933	48.23	2,355.9	T	-	USFWS
					09-11-2001	1316	48.12	2,356.0	S	-	EMP
					10-23-2001	1428	48.11	2,356.0	S	-	EMP
					10-24-2001	1236	48.22	2,355.9	T	-	USFWS
					11-01-2001	1243	48.20	2,355.9	S	-	EMP
					12-10-2001	0905	48.11	2,356.0	S	-	EMP
					12-19-2001	1112	48.21	2,355.9	T	-	USFWS
					01-08-2002	1524	48.16	2,355.9	S	-	EMP
					01-23-2002	1323	48.25	2,355.8	T	-	USFWS
					02-07-2002	1246	48.17	2,355.9	S	-	EMP
					03-15-2002	0918	48.20	2,355.9	S	-	EMP
					03-26-2002	1017	48.24	2,355.9	T	-	USFWS
					04-18-2002	1205	48.19	2,355.9	S	-	EMP
					05-01-2002	0756	48.14	2,356.0	S	-	EMP
					05-01-2002	1347	48.22	2,355.9	T	-	USFWS
					06-14-2002	1201	48.19	2,355.9	S	-	EMP
					06-26-2002	1224	48.18	2,355.9	T	-	USFWS
					07-04-2002	1018	48.08	2,356.0	S	-	EMP
					08-07-2002	1323	48.22	2,355.9	S	-	EMP
					09-11-2002	0910	48.16	2,355.9	S	-	EMP
					10-02-2002	1745	48.19	2,355.9	T	-	USFWS
					10-11-2002	1101	48.19	2,355.9	S	-	EMP
					11-06-2002	1316	48.17	2,355.9	S	-	EMP
					12-04-2002	1313	48.10	2,356.0	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-6	362432116165701	Point of Rocks North Well	2,318.8	0.0	01-20-2000	1539	21.37	2,297.4	T	-	USFWS
					01-21-2000	0821	21.41	2,297.4	S	-	EMP
					02-17-2000	1445	21.36	2,297.4	S	-	EMP
					03-14-2000	1052	21.39	2,297.4	S	-	EMP
					03-16-2000	1050	21.35	2,297.4	T	-	USFWS
					04-13-2000	0808	21.39	2,297.4	S	-	EMP
					05-01-2000	1222	21.55	2,297.2	S	-	EMP
					05-10-2000	1010	21.51	2,297.3	T	-	USFWS
					06-08-2000	1050	21.61	2,297.2	S	-	EMP
					07-05-2000	1113	21.65	2,297.2	S	-	EMP
					07-17-2000	1150	21.62	2,297.2	T	-	USFWS
					08-24-2000	1455	21.79	2,297.0	S	-	EMP
					09-18-2000	1437	21.67	2,297.1	S	-	EMP
					09-22-2000	1452	21.59	2,297.2	T	-	USFWS
					10-10-2000	1133	21.65	2,297.2	S	-	EMP
					11-07-2000	1111	21.59	2,297.2	S	-	EMP
					11-20-2000	0929	21.57	2,297.2	T	-	USFWS
					12-04-2000	1330	21.55	2,297.2	S	-	EMP
					01-08-2001	1345	21.49	2,297.3	S	-	EMP
					01-23-2001	1600	21.42	2,297.4	T	-	USFWS
					02-07-2001	1206	21.43	2,297.4	S	-	EMP
					02-23-2001	1354	21.34	2,297.5	T	-	USFWS
					03-20-2001	1140	21.39	2,297.4	S	-	EMP
					04-16-2001	1430	21.36	2,297.4	T	-	USFWS
					04-17-2001	1525	21.40	2,297.4	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-6	362432116165701	Point of Rocks North Well	2,318.8	0.0	05-17-2001	1419	21.40	2,297.4	S	-	EMP
					06-13-2001	1518	21.45	2,297.4	S	-	EMP
					06-21-2001	0713	21.49	2,297.3	T	-	USFWS
					07-18-2001	1035	21.57	2,297.2	S	-	EMP
					08-20-2001	1033	21.49	2,297.3	S	-	EMP
					08-30-2001	0741	21.51	2,297.3	T	-	USFWS
					09-11-2001	1340	21.58	2,297.2	S	-	EMP
					10-23-2001	1501	21.46	2,297.3	S	-	EMP
					10-24-2001	0819	21.46	2,297.3	T	-	USFWS
					11-07-2001	1619	21.41	2,297.4	S	-	EMP
					12-10-2001	0943	21.33	2,297.5	S	-	EMP
					12-18-2001	1157	21.27	2,297.5	T	-	USFWS
					01-08-2002	1457	21.36	2,297.4	S	-	EMP
					01-23-2002	1116	21.30	2,297.5	T	-	USFWS
					02-07-2002	1222	21.36	2,297.4	S	-	EMP
					03-15-2002	1214	21.34	2,297.5	S	-	EMP
					03-26-2002	1055	21.29	2,297.5	T	-	USFWS
					04-18-2002	1110	21.44	2,297.4	S	-	EMP
					05-01-2002	1337	21.36	2,297.4	T	-	USFWS
					05-13-2002	0959	21.46	2,297.3	S	-	EMP
					06-14-2002	1147	21.65	2,297.2	S	-	EMP
					06-29-2002	1320	21.48	2,297.3	T	-	USFWS
					07-04-2002	0953	21.51	2,297.3	S	-	EMP
					08-07-2002	1411	21.61	2,297.2	S	-	EMP
					08-29-2002	0915	21.45	2,297.4	T	-	USFWS
					09-11-2002	0928	21.60	2,297.2	S	-	EMP
					10-02-2002	1140	21.43	2,297.4	T	-	USFWS
					10-11-2002	1139	21.54	2,297.3	S	-	EMP
					11-06-2002	1221	21.57	2,297.2	S	-	EMP
					12-04-2002	1219	21.47	2,297.3	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-7	362417116163600	Point of Rocks South Well	2,333.5	0.8	01-20-2000	1549	7.27	2,326.2	T	-	USFWS
					01-21-2000	0837	7.39	2,326.1	S	-	EMP
					02-17-2000	1511	7.51	2,326.0	S	-	EMP
					03-14-2000	1012	7.59	2,325.9	S	-	EMP
					03-16-2000	1102	7.63	2,325.9	T	-	USFWS
					04-13-2000	0748	7.65	2,325.8	S	-	EMP
					05-01-2000	1200	7.79	2,325.7	S	-	EMP
					05-10-2000	1020	7.72	2,325.8	T	-	USFWS
					06-08-2000	1005	7.84	2,325.7	S	-	EMP
					07-05-2000	1059	7.89	2,325.6	S	-	EMP
					07-17-2000	1200	7.98	2,325.5	T	-	USFWS
					08-24-2000	1515	7.97	2,325.5	S	-	EMP
					09-18-2000	1419	7.87	2,325.6	S	-	EMP
					09-22-2000	1502	7.81	2,325.7	T	-	USFWS
					10-10-2000	1112	7.83	2,325.7	S	-	EMP
					11-07-2000	1139	7.69	2,325.8	S	-	EMP
					11-20-2000	0940	7.71	2,325.8	T	-	USFWS
					12-04-2000	1308	7.73	2,325.8	S	-	EMP
					01-08-2001	1325	7.83	2,325.7	S	-	EMP
					01-23-2001	1617	7.90	2,325.6	T	-	USFWS
					02-07-2001	1153	7.87	2,325.6	S	-	EMP
					02-23-2001	1405	7.84	2,325.7	T	-	USFWS
					03-20-2001	1215	7.86	2,325.6	S	-	EMP
					04-16-2001	1442	7.86	2,325.6	T	-	USFWS
					04-17-2001	1612	7.84	2,325.7	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
AM-7	362417116163600	Point of Rocks South Well	2,333.5	0.8	05-17-2001	1451	7.94	2,325.6	S	-	EMP
					06-13-2001	1548	8.12	2,325.4	S	-	EMP
					06-21-2001	0723	7.84	2,325.7	T	-	USFWS
					07-18-2001	1106	7.99	2,325.5	S	-	EMP
					08-20-2001	1058	7.94	2,325.6	S	-	EMP
					08-30-2001	0730	8.04	2,325.5	T	-	USFWS
					09-11-2001	1415	7.95	2,325.6	S	-	EMP
					10-23-2001	1532	7.83	2,325.7	S	-	EMP
					10-24-2001	0835	7.93	2,325.6	T	-	USFWS
					11-15-2001	1052	7.77	2,325.7	S	-	EMP
					12-10-2001	1020	7.60	2,325.9	S	-	EMP
					12-19-2001	1211	7.63	2,325.9	T	-	USFWS
					01-08-2002	1433	7.58	2,325.9	S	-	EMP
					01-23-2002	1127	7.66	2,325.8	T	-	USFWS
					02-06-2002	1201	7.59	2,325.9	S	-	EMP
					03-15-2002	1245	7.58	2,325.9	S	-	EMP
					03-26-2002	1115	7.62	2,325.9	T	-	USFWS
					04-18-2002	1135	7.58	2,325.9	S	-	EMP
					05-01-2002	1322	7.57	2,325.9	T	-	USFWS
					05-13-2002	1023	7.62	2,325.9	S	-	EMP
					06-14-2002	1129	8.60	2,324.9	S	-	EMP
					06-26-2002	1305	7.76	2,325.7	T	-	USFWS
					07-04-2002	0927	7.69	2,325.8	S	-	EMP
					08-07-2002	1350	7.90	2,325.6	S	-	EMP
					08-29-2002	0930	7.92	2,325.6	T	-	USFWS
					09-11-2002	0955	7.85	2,325.6	S	-	EMP
					10-02-2002	0930	7.86	2,325.6	T	-	USFWS
					10-11-2002	1212	7.84	2,325.7	S	-	EMP
					11-06-2002	1251	7.62	2,325.9	S	-	EMP
					12-04-2002	1248	7.53	2,326.0	S	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land-surface altitude (feet above sea level)	Height of measurement point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
DV-3	362230116392901	Travertine Point 1 Well	2,728.4	2.0	01-28-2000	1337	601.47	2,126.9	V	-	EMP
					02-17-2000	1320	601.36	2,127.0	V	-	EMP
					03-13-2000	1508	601.31	2,127.1	V	-	EMP
					04-12-2000	1425	601.41	2,127.0	V	-	EMP
					05-04-2000	0839	601.30	2,127.1	V	-	EMP
					06-07-2000	1158	601.30	2,127.1	V	-	EMP
					07-07-2000	0829	601.36	2,127.0	V	-	EMP
					08-24-2000	1115	601.43	2,127.0	V	-	EMP
					09-20-2000	1027	601.44	2,127.0	V	-	EMP
					10-12-2000	1530	601.60	2,126.8	V	-	EMP
					11-13-2000	1401	601.56	2,126.8	V	-	EMP
					12-07-2000	1507	601.51	2,126.9	V	-	EMP
					01-10-2001	1221	601.46	2,126.9	V	-	EMP
					02-07-2001	1430	601.44	2,127.0	V	-	EMP
					03-21-2001	1008	601.60	2,126.8	V	-	EMP
					04-19-2001	1231	601.58	2,126.8	V	-	EMP
					05-02-2001	1259	601.61	2,126.8	V	-	EMP
					06-13-2001	1323	601.65	2,126.8	V	-	EMP
					07-17-2001	1323	601.68	2,126.7	V	-	EMP
					08-24-2001	1236	601.70	2,126.7	V	-	EMP
					09-10-2001	1245	601.73	2,126.7	V	-	EMP
					10-24-2001	1237	601.82	2,126.6	V	-	EMP
					11-15-2001	1403	601.79	2,126.6	V	-	EMP
					12-06-2001	1453	601.91	2,126.5	V	-	EMP
					01-14-2002	1005	601.88	2,126.5	V	-	EMP
					02-05-2002	1244	601.89	2,126.5	V	-	EMP
					03-19-2002	1314	601.97	2,126.4	V	-	EMP
					04-19-2002	1245	601.90	2,126.5	V	-	EMP
					05-01-2002	1218	601.90	2,126.5	V	-	EMP
					06-18-2002	1202	601.88	2,126.5	V	-	EMP

Table 5. Periodic water-level data at monitoring sites in Yucca Mountain region, 2000–02—Continued

Site number (fig. 1)	U.S. Geological Survey site identification	Site name	Land- surface altitude (feet above sea level)	Height of measure- ment point (feet above land surface)	Water-level measurement						
					Date	Time	Depth to water (feet below land surface)	Altitude of water surface (feet above sea level)	Method	Site status	Data source
DV-3	362230116392901	Travertine Point 1 Well	2,728.4	2.0	07-02-2002	1339	601.96	2,126.4	V	-	EMP
					08-06-2002	1607	601.95	2,126.4	V	-	EMP
					09-10-2002	1558	601.97	2,126.4	V	-	EMP
					10-25-2002	1125	602.00	2,126.4	V	-	EMP
					11-07-2002	1314	601.98	2,126.4	V	-	EMP
					12-04-2002	1555	602.17	2,126.2	V	-	EMP

Table 6. Daily average water levels in well JF-3, 2000–02

[--, data not available]

Day	Water level, in feet below land surface, for calendar year 2000											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	709.68	710.23	710.01	710.00	709.90	709.97	709.86	709.94	709.86	709.92	710.13	709.96
2	709.93	710.16	710.00	709.93	709.76	710.08	709.84	709.90	709.94	709.88	710.00	709.93
3	710.30	709.91	709.89	710.09	709.79	710.07	709.83	709.87	709.91	709.89	710.02	710.00
4	710.21	709.84	709.70	709.97	709.77	709.96	709.91	709.94	709.90	709.90	709.89	710.05
5	710.03	709.91	709.53	709.79	709.74	709.87	709.86	709.89	709.94	710.00	709.73	710.00
6	710.21	710.10	709.82	709.85	709.84	709.89	709.91	709.80	710.05	709.97	709.72	709.99
7	710.02	710.17	710.06	709.99	709.87	709.79	709.94	709.84	709.95	709.95	710.05	709.75
8	709.91	709.96	710.09	709.85	709.93	709.69	709.96	709.93	709.80	710.00	709.89	709.70
9	709.86	709.74	710.19	709.78	709.86	709.85	709.91	709.91	709.83	709.87	709.62	709.78
10	709.84	709.66	710.28	709.89	709.65	709.88	709.93	709.87	709.97	709.69	709.75	709.79
11	709.80	709.78	710.14	710.03	710.07	709.96	709.98	709.91	710.07	709.95	710.04	709.85
12	709.95	709.72	709.95	710.01	710.20	709.98	710.02	709.88	710.04	710.15	710.25	709.64
13	710.14	709.87	709.90	709.79	709.97	709.97	710.03	709.84	709.98	710.18	710.07	709.91
14	710.03	709.95	709.88	709.67	709.87	709.99	709.99	709.88	709.98	710.06	709.85	710.06
15	709.91	710.11	709.81	709.81	709.76	709.78	709.88	709.99	709.96	709.99	709.95	710.12
16	709.93	709.83	709.93	709.89	709.75	709.69	709.81	710.01	709.92	710.05	710.06	710.21
17	710.02	709.91	710.09	709.81	709.94	709.81	709.91	709.90	709.91	710.05	710.16	710.05
18	709.97	710.17	710.10	709.92	710.07	709.86	710.01	709.86	709.99	709.98	710.23	710.26
19	709.99	710.12	709.70	710.08	710.06	709.91	709.93	709.91	709.87	709.92	710.10	709.91
20	709.86	709.83	709.73	709.99	709.96	709.97	709.85	709.91	709.77	709.80	710.02	709.72
21	709.82	709.81	709.92	709.74	709.93	709.92	709.84	709.85	709.58	709.63	709.85	709.71
22	709.92	710.05	710.01	709.81	709.85	709.89	709.88	709.89	709.69	709.89	709.74	709.72
23	710.01	709.80	709.94	709.88	709.80	709.94	709.94	710.00	710.11	710.02	709.99	709.82
24	709.96	709.84	709.90	710.02	709.75	710.01	709.90	710.04	710.36	710.13	709.97	709.81
25	709.87	710.10	709.97	709.98	709.69	709.97	709.80	709.98	710.20	709.93	709.96	710.03
26	709.94	710.15	710.04	709.95	709.85	709.89	709.81	709.84	710.06	709.71	709.91	710.10
27	710.12	709.79	709.79	709.80	709.99	709.88	709.92	709.77	710.03	709.78	709.88	710.01
28	710.15	709.88	709.66	709.67	709.92	709.90	709.95	709.89	709.96	709.94	709.89	709.93
29	710.03	709.94	709.87	710.01	709.77	709.88	709.89	709.93	709.87	709.91	709.79	709.87
30	709.91	---	710.07	710.10	709.74	709.86	709.84	709.89	709.91	709.90	709.97	709.75
31	709.99	---	710.05	---	709.88	---	709.90	709.87	---	710.04	---	709.80
MEAN	709.98	709.94	709.94	709.90	709.87	709.90	709.90	709.90	709.95	709.94	709.95	709.91
MAX	710.30	710.23	710.28	710.10	710.20	710.08	710.03	710.04	710.36	710.18	710.25	710.26
MIN	709.68	709.66	709.53	709.67	709.65	709.69	709.80	709.77	709.58	709.63	709.62	709.64
(2000 annual summary		Mean 709.92		Maximum 710.36		Minimum 709.53)						

Table 6. Daily average water levels in well JF-3, 2000–02—Continued

Day	Water level, in feet below land surface, for calendar year 2001											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	709.92	710.12	709.86	709.51	---	709.68	709.74	709.91	709.84	709.88	709.82	709.90
2	710.14	710.05	709.67	709.46	---	709.56	709.73	709.91	709.83	709.84	709.86	709.76
3	710.11	709.96	709.79	709.70	---	709.57	709.75	709.75	709.83	709.82	709.95	709.66
4	709.89	709.94	709.92	709.85	---	709.77	709.81	709.69	709.82	709.75	709.84	709.83
5	709.75	709.69	709.87	709.81	---	709.85	709.78	709.85	709.71	709.74	709.78	710.08
6	709.66	709.30	709.89	709.70	---	709.95	709.84	709.88	709.77	709.82	709.75	710.15
7	709.70	709.38	709.86	709.66	---	709.89	709.88	709.78	709.79	709.89	709.93	710.15
8	709.60	709.84	709.89	709.89	---	709.80	709.84	709.72	709.80	709.79	710.08	710.01
9	709.68	709.95	709.56	709.76	---	709.81	709.73	709.75	709.83	709.83	709.90	709.46
10	709.79	709.75	709.56	709.74	---	709.78	709.68	709.79	709.82	709.97	709.78	709.31
11	709.64	709.80	709.75	---	---	709.75	709.68	709.74	709.78	709.81	709.73	709.62
12	709.79	709.80	710.01	---	---	709.65	709.78	709.76	709.68	709.94	709.65	710.00
13	710.05	709.69	709.94	---	---	709.83	709.77	709.85	709.80	709.81	709.75	710.04
14	710.01	709.96	709.87	709.86	---	709.98	709.62	709.78	709.88	709.80	709.88	709.48
15	709.80	710.10	709.80	---	---	709.91	709.56	709.74	709.78	709.88	709.81	709.89
16	709.87	710.17	709.63	---	---	709.90	709.63	709.77	709.73	709.86	709.84	710.20
17	710.10	710.05	709.85	709.86	709.68	709.82	709.75	709.81	709.78	709.76	709.84	710.00
18	710.07	709.87	709.95	---	709.67	709.79	709.78	709.76	709.80	709.84	709.92	709.96
19	709.99	709.78	709.92	---	709.78	709.77	709.73	709.69	709.80	709.79	710.01	709.80
20	710.00	709.90	709.79	---	709.77	709.87	709.73	709.67	709.86	709.66	709.85	709.57
21	709.96	709.98	709.73	---	709.86	709.90	709.75	709.66	709.85	709.69	709.63	709.74
22	709.76	709.63	709.69	---	709.87	709.81	709.74	709.77	709.83	709.76	709.48	709.99
23	709.76	709.48	709.74	---	709.80	709.72	709.73	709.81	709.80	709.75	709.71	710.00
24	709.66	709.73	709.73	---	709.77	709.72	709.74	709.77	709.83	709.94	709.49	710.10
25	709.86	709.93	709.68	---	709.75	709.73	709.79	709.75	709.73	709.99	709.79	709.99
26	709.64	709.89	709.70	---	709.70	709.76	709.84	709.77	709.75	709.98	710.00	709.79
27	709.57	709.82	709.80	---	709.59	709.88	709.87	709.74	709.76	709.82	710.05	709.69
28	709.87	709.79	709.70	---	709.63	709.88	709.83	709.62	709.73	709.83	709.94	709.67
29	709.98	---	709.63	---	709.86	709.78	709.76	709.63	709.80	709.91	709.62	709.73
30	710.14	---	709.78	---	709.97	709.73	709.68	709.77	709.87	709.77	709.83	709.84
31	710.11	---	709.78	---	709.90	---	709.78	709.83	---	709.75	---	709.80
MEAN	709.87	709.83	709.79	709.73	709.77	709.79	709.75	709.77	709.80	709.83	709.82	709.85
MAX	710.14	710.17	710.01	709.89	709.97	709.98	709.88	709.91	709.88	709.99	710.08	710.20
MIN	709.57	709.30	709.56	709.46	709.59	709.56	709.56	709.62	709.68	709.66	709.48	709.31
(2001 annual summary		Mean 709.80		Maximum 710.20		Minimum 709.30)						

Table 6. Daily average water levels in well JF-3, 2000–02—Continued

Day	Water level, in feet below land surface, for calendar year 2002											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	709.90	710.00	709.75	709.71	709.73	709.58	709.81	709.64	---	---	709.79	709.68
2	709.86	709.87	710.04	709.70	709.81	709.63	709.80	709.61	---	709.74	709.83	709.59
3	709.87	709.98	710.12	709.75	709.87	709.73	709.68	709.70	---	709.85	709.74	709.66
4	710.04	709.93	709.93	709.85	709.87	709.88	709.62	709.73	---	709.83	709.70	709.79
5	710.11	709.86	709.71	709.79	709.81	709.87	709.68	709.67	---	709.85	709.89	709.77
6	710.05	709.84	709.56	709.60	709.73	709.71	709.76	709.68	---	709.88	709.84	709.61
7	709.95	709.79	709.40	709.71	709.61	709.56	709.77	709.75	---	709.76	709.57	709.61
8	709.69	709.84	709.82	709.86	709.86	709.46	709.82	---	---	709.63	709.34	709.78
9	709.59	710.20	710.07	709.95	709.75	709.71	709.79	---	---	709.63	709.46	709.73
10	709.96	710.23	709.86	709.90	709.57	709.84	709.78	---	---	709.57	709.78	709.61
11	710.04	709.87	709.94	709.88	709.88	709.85	709.77	---	---	709.68	710.01	709.64
12	709.84	709.62	709.70	709.83	710.09	709.84	709.69	---	---	709.91	710.01	709.72
13	709.66	709.60	709.54	709.89	709.88	709.81	709.62	---	---	709.83	709.74	709.65
14	709.48	709.61	709.75	709.58	709.60	709.73	709.62	---	---	709.67	709.79	709.59
15	709.63	709.79	709.72	709.34	709.58	709.75	709.71	---	---	709.55	709.90	709.54
16	709.87	709.66	709.67	709.76	709.74	709.78	709.71	---	---	709.46	709.79	709.30
17	709.88	709.40	709.70	709.80	709.78	709.71	709.78	---	---	709.52	709.60	709.30
18	709.97	709.63	709.92	709.91	709.71	709.61	709.78	---	---	709.66	709.84	709.73
19	709.80	709.94	710.10	709.87	709.64	709.60	709.70	---	---	709.72	709.86	709.89
20	709.90	710.05	710.01	709.88	709.71	709.67	709.69	---	---	709.64	709.78	709.66
21	709.71	710.19	709.84	709.95	709.88	709.76	709.72	---	---	709.56	709.67	709.67
22	709.62	709.95	709.62	709.91	709.85	709.85	709.69	---	---	709.63	709.51	709.60
23	710.02	709.49	709.53	709.86	709.76	709.82	709.77	---	---	709.69	709.43	709.61
24	710.21	709.77	709.68	709.89	709.82	709.77	709.83	---	709.61	709.65	709.58	709.82
25	709.87	710.00	709.88	709.68	709.77	709.78	709.74	---	709.55	709.56	709.71	709.86
26	709.54	709.98	709.88	709.49	709.70	709.76	709.64	---	709.55	709.57	709.76	709.91
27	709.46	709.71	709.79	709.70	709.73	709.69	709.64	---	709.43	709.75	709.74	709.92
28	709.59	709.45	709.76	709.95	709.80	709.67	709.73	---	---	709.71	709.76	709.48
29	709.77	---	709.82	709.79	709.82	709.74	709.71	---	---	709.58	709.60	709.41
30	710.01	---	709.89	709.68	709.73	709.82	709.67	---	---	709.65	709.65	709.76
31	710.18	---	709.83	---	709.69	---	709.69	---	---	709.70	---	709.62
MEAN	709.84	709.83	709.80	709.78	709.77	709.73	709.72	709.68	709.53	709.68	709.72	709.66
MAX	710.21	710.23	710.12	709.95	710.09	709.88	709.83	709.75	709.61	709.91	710.01	709.92
MIN	709.46	709.40	709.40	709.34	709.57	709.46	709.62	709.61	709.43	709.46	709.34	709.30
(2002 annual summary		Mean 709.75		Maximum 710.23		Minimum 709.30)						

[--, data not available]

Day	Water level, in feet below land surface, for calendar year 2000											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	41.61	41.80	41.70	41.69	41.64	41.67	41.65	41.68	---	41.69	41.82	41.79
2	41.72	41.75	41.69	41.66	41.58	41.72	41.65	41.66	---	41.67	41.76	41.78
3	41.86	41.65	41.63	41.73	41.61	41.71	41.65	41.66	---	41.68	41.78	41.82
4	41.79	41.64	41.56	41.67	41.59	41.66	41.68	41.69	---	41.69	41.73	---
5	41.72	41.67	41.51	41.60	41.58	41.64	41.65	41.67	---	41.73	41.67	---
6	41.81	41.75	41.65	41.64	41.63	41.66	41.67	41.63	---	41.71	41.67	---
7	41.73	41.77	41.73	41.69	41.64	41.62	41.68	41.66	---	41.71	41.82	---
8	41.69	41.68	41.72	41.63	41.66	41.60	41.69	41.69	---	41.74	41.72	---
9	41.68	41.60	41.76	41.61	41.62	41.67	41.67	---	---	41.69	41.61	---
10	41.66	41.58	41.80	41.66	41.54	41.66	41.68	---	---	41.64	41.69	---
11	41.64	41.64	41.73	41.71	41.75	41.69	41.69	---	---	41.76	41.81	---
12	41.70	41.61	41.66	41.69	41.77	41.68	41.71	---	---	41.82	41.88	---
13	41.77	41.66	41.65	41.61	41.67	41.67	41.71	---	---	41.82	41.78	---
14	41.70	41.68	41.64	41.58	41.64	41.68	41.70	---	---	41.77	41.70	---
15	41.66	41.73	41.61	41.64	41.60	41.59	41.66	---	---	41.75	41.77	---
16	41.67	41.61	41.67	41.66	41.62	41.56	41.64	---	---	41.78	41.81	---
17	41.71	41.67	41.74	41.62	41.69	41.63	41.69	---	---	41.77	41.85	---
18	41.67	41.77	41.73	41.69	41.73	41.64	41.72	---	---	41.75	41.87	---
19	41.69	41.73	41.55	41.74	41.71	41.66	41.68	---	---	41.72	41.82	---
20	41.63	41.61	41.60	41.68	41.67	41.68	41.64	---	41.61	41.69	41.79	---
21	41.62	41.63	41.69	41.58	41.66	41.65	41.65	---	41.52	41.62	41.73	---
22	41.67	41.73	41.70	41.63	41.63	41.64	41.67	---	41.60	41.74	41.71	---
23	41.70	41.61	41.67	41.66	41.61	41.67	41.69	---	41.78	41.79	41.82	---
24	41.67	41.65	41.65	41.70	41.59	41.70	41.66	---	41.85	41.83	41.79	---
25	41.63	41.76	41.68	41.67	41.57	41.69	41.62	---	41.76	41.73	41.79	---
26	41.67	41.75	41.71	41.66	41.64	41.65	41.64	---	41.72	41.65	41.77	---
27	41.75	41.59	41.60	41.60	41.69	41.65	41.68	---	41.72	41.69	41.77	---
28	41.75	41.66	41.56	41.56	41.64	41.66	41.69	---	41.69	41.76	41.77	---
29	41.70	41.68	41.66	41.72	41.58	41.65	41.66	---	41.67	41.73	41.72	---
30	41.66	---	41.72	41.73	41.58	41.65	41.65	---	41.69	41.73	41.80	---
31	41.70	---	41.70	---	41.64	---	41.67	---	---	41.80	---	---
MEAN	41.70	41.68	41.67	41.66	41.64	41.66	41.67	41.67	41.69	41.73	41.77	---
MAX	41.86	41.80	41.80	41.74	41.77	41.72	41.72	41.69	41.85	41.83	41.88	---
MIN	41.61	41.58	41.51	41.56	41.54	41.56	41.62	41.63	41.52	41.62	41.61	---
(2000 annual summary		Mean 41.69		Maximum 41.88		Minimum 41.51)						

Table 7. Daily average water levels in well AD-6, 2000–02—Continued

Day	Water level, in feet below land surface, for calendar year 2001											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	---	---	---	---	---	41.63	41.69	41.80	41.78	41.80	41.83	41.85
2	---	---	---	---	---	41.60	41.68	41.79	41.78	41.79	41.84	41.78
3	---	---	---	---	---	41.62	41.69	41.73	41.78	41.78	41.87	41.75
4	---	---	---	---	---	41.70	41.72	41.72	41.78	41.75	41.81	41.83
5	---	---	---	---	---	41.72	41.71	41.79	41.72	41.76	41.80	41.93
6	---	---	---	---	---	41.75	41.75	41.79	41.76	41.80	41.80	41.94
7	---	---	---	---	---	41.72	41.78	41.74	41.77	41.83	41.87	41.94
8	---	---	---	---	---	41.67	41.76	41.72	41.77	41.78	41.92	41.88
9	---	---	---	---	---	41.69	41.71	41.74	41.79	41.80	41.85	41.67
10	---	---	---	---	---	41.70	41.70	41.76	41.78	41.87	41.82	41.64
11	---	---	---	---	41.70	41.68	41.70	41.74	41.76	41.80	41.80	41.78
12	---	---	---	---	41.71	41.63	41.74	41.75	41.72	41.86	41.78	41.91
13	---	---	---	---	41.71	41.73	41.73	41.79	41.78	41.80	41.83	41.90
14	---	---	---	---	41.72	41.77	41.67	41.76	41.81	41.80	41.87	41.65
15	---	---	---	---	41.70	41.72	41.66	41.74	41.76	41.83	41.83	41.87
16	---	---	---	---	41.66	41.72	41.69	41.76	41.74	41.81	41.84	41.98
17	---	---	---	---	41.66	41.69	41.74	41.77	41.77	41.77	41.83	41.88
18	---	---	---	---	41.66	41.68	41.74	41.75	41.77	41.82	41.87	41.87
19	---	---	---	---	41.72	41.68	41.72	41.73	41.77	41.79	41.90	41.81
20	---	---	---	---	41.68	41.73	41.72	41.72	41.79	41.74	41.84	41.72
21	---	---	---	---	41.73	41.74	41.73	41.72	41.79	41.75	41.76	41.81
22	---	---	---	---	41.72	41.70	41.72	41.77	41.78	41.78	41.70	41.90
23	---	---	---	---	41.70	41.68	41.71	41.78	41.78	41.77	41.81	41.89
24	---	---	---	---	41.68	41.69	41.71	41.75	41.79	41.86	41.70	41.93
25	---	---	---	---	41.68	41.69	41.73	41.75	41.74	41.87	41.84	41.89
26	---	---	---	---	41.67	41.71	41.75	41.76	41.75	41.86	41.91	41.81
27	---	---	---	---	41.61	41.76	41.75	41.74	41.76	41.80	41.92	41.78
28	---	---	---	---	41.64	41.75	41.74	41.69	41.74	41.81	41.87	41.77
29	---	---	---	---	41.73	41.70	41.72	41.70	41.78	41.85	41.74	41.79
30	---	---	---	---	41.76	41.69	41.69	41.76	41.80	41.79	41.84	41.84
31	---	---	---	---	41.71	---	41.75	41.78	---	41.80	---	41.81
MEAN	---	---	---	---	41.69	41.70	41.72	41.75	41.77	41.80	41.83	41.83
MAX	---	---	---	---	41.76	41.77	41.78	41.80	41.81	41.87	41.92	41.98
MIN	---	---	---	---	41.61	41.60	41.66	41.69	41.72	41.74	41.70	41.64
(2001 annual summary		Mean 41.77		Maximum 41.98		Minimum 41.60)						

Table 7. Daily average water levels in well AD-6, 2000–02—Continued

Day	Water level, in feet below land surface, for calendar year 2002											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	41.85	41.88	41.81	41.72	41.77	41.69	41.80	41.76	41.85	41.80	41.90	41.86
2	41.82	41.84	41.92	41.72	41.79	41.72	41.80	41.75	41.80	41.87	41.91	41.81
3	41.83	41.89	41.93	41.74	41.81	41.75	41.75	41.80	41.78	41.91	41.87	41.85
4	41.91	41.86	41.85	41.78	41.80	41.80	41.73	41.81	41.82	41.88	41.88	41.89
5	41.94	41.83	41.77	41.75	41.77	41.79	41.76	41.79	41.82	41.89	41.95	41.87
6	41.91	41.84	41.71	41.68	41.74	41.72	41.79	41.79	41.78	41.90	41.92	41.81
7	41.87	41.81	41.66	41.74	41.70	41.67	41.79	41.82	41.80	41.84	41.81	41.82
8	41.77	41.83	41.85	41.79	41.82	41.64	41.80	41.85	41.88	41.80	41.73	41.88
9	41.74	41.98	41.91	41.81	41.75	41.77	41.79	41.81	41.89	41.81	41.79	41.86
10	41.90	41.98	41.80	41.79	41.68	41.80	41.78	41.76	41.82	---	41.92	41.81
11	41.92	41.84	41.85	41.78	41.83	41.79	41.79	41.76	41.81	41.84	42.00	41.83
12	41.83	41.74	41.74	41.76	41.90	41.78	41.76	41.75	41.82	41.93	41.98	41.86
13	41.76	41.75	41.69	41.79	41.79	41.77	41.73	41.77	41.82	41.88	41.87	41.82
14	41.69	41.76	41.80	41.66	41.69	41.75	41.73	41.75	41.85	41.83	41.90	41.79
15	41.77	41.82	41.78	41.60	41.70	41.77	41.78	41.75	41.82	41.79	41.95	41.77
16	41.87	41.75	41.76	41.79	41.77	41.77	41.77	41.78	41.77	41.76	41.91	41.68
17	41.87	41.66	41.77	41.78	41.77	41.75	41.80	41.78	41.78	41.79	41.84	41.69
18	41.90	41.77	41.86	41.83	41.73	41.70	41.80	41.74	41.82	41.84	41.95	41.88
19	41.81	41.88	41.91	41.80	41.72	41.70	41.77	41.74	41.86	41.86	41.94	41.91
20	41.87	41.89	41.85	41.82	41.77	41.73	41.77	41.77	41.83	---	41.89	41.80
21	41.78	41.94	41.78	41.83	41.84	41.77	41.78	41.81	41.85	---	41.86	41.82
22	41.75	41.83	41.70	41.81	41.81	41.81	41.77	41.85	41.86	---	41.80	41.78
23	41.93	41.65	41.69	41.78	41.77	41.79	41.81	41.84	41.82	---	41.77	41.80
24	41.98	41.81	41.76	41.81	41.80	41.77	41.83	41.84	41.79	---	41.84	41.89
25	41.83	41.88	41.82	41.72	41.77	41.78	41.79	41.83	41.77	---	41.88	41.90
26	41.70	41.85	41.80	41.66	41.74	41.77	41.75	41.80	41.77	41.80	41.90	41.92
27	41.69	41.74	41.76	41.77	41.76	41.75	41.77	41.76	41.72	41.88	41.88	41.92
28	41.75	41.65	41.75	41.86	41.78	41.75	41.80	41.78	41.80	---	41.89	41.74
29	41.81	---	41.77	41.77	41.78	41.78	41.79	41.81	41.85	41.80	41.82	41.73
30	41.91	---	41.80	41.74	41.74	41.81	41.77	41.82	41.84	41.84	41.85	41.89
31	41.96	---	41.77	---	41.73	---	41.78	41.86	---	41.86	---	41.79
MEAN	41.84	41.82	41.79	41.76	41.77	41.75	41.78	41.79	41.82	41.84	41.88	41.83
MAX	41.98	41.98	41.93	41.86	41.90	41.81	41.83	41.86	41.89	41.93	42.00	41.92
MIN	41.69	41.65	41.66	41.60	41.68	41.64	41.73	41.74	41.72	41.76	41.73	41.68
(2002 annual summary		Mean 41.81		Maximum 42.00		Minimum 41.60)						

Table 8. Ground-water-discharge data at monitoring sites in Yucca Mountain region, 2000–02

Site number: Sites are grouped by hydrographic area and, within each area, are listed in general north-to-south, then west-to-east order. See text section “Site Number” for further discussion.

U.S. Geological Survey site identification: Unique identification number for site as stored in files and data bases of U.S. Geological Survey (USGS).

Discharge: Reported to two significant figures. Discharge measured at site AM-2 represents a combination of flow directly through slotted casing at land surface and leakage from the casing’s annular space.

Method: Method used to measure discharge. C, current meter; F, flume; V, volumetric; Z, discharge represents monthly mean discharge on basis of continually recorded stage (see text section “Ground-Water Discharge Data” for further discussion).

Data source: EMP, Environmental-Monitoring Program (USGS); NPS, National Park Service; USFWS, U.S. Fish and Wildlife Service.

[--, measurement time not available or not applicable]

Site number (fig.1)	U.S. Geological Survey site identification	Site name	Discharge measurement				
			Date	Time	Discharge (gallons per minute)	Method	Data source
AM- 1a	362924116203001	Fairbanks Spring	02-14-2000	--	1,800	F	USFWS
			03-13-2000	--	1,800	F	USFWS
			03-23-2000	1440	1,700	C	EMP
			04-18-2000	--	1,800	F	USFWS
			05-10-2000	--	1,800	F	USFWS
			06-12-2000	1340	1,600	C	EMP
			06-19-2000	--	1,800	F	USFWS
			07-17-2000	--	1,800	F	USFWS
			08-17-2000	--	1,700	F	USFWS
			08-29-2000	1130	1,700	C	EMP
			09-22-2000	--	1,800	F	USFWS
			10-24-2000	--	1,700	F	USFWS
			11-14-2000	1011	1,700	C	EMP
			11-15-2000	--	1,800	F	USFWS
			01-22-2001	--	1,800	F	USFWS
			02-15-2001	1020	1,700	C	EMP
			02-23-2001	--	1,800	F	USFWS
			03-21-2001	--	1,800	F	USFWS
			04-16-2001	--	1,800	F	USFWS
			05-31-2001	0911	1,600	C	EMP
			05-31-2001	--	1,800	F	USFWS
			06-20-2001	--	1,800	F	USFWS
			07-25-2001	--	1,800	F	USFWS
			08-23-2001	--	1,800	F	USFWS
			08-30-2001	1808	1,700	C	EMP

Table 8. Ground-water-discharge data at monitoring sites in Yucca mountain region, 2000–02—Continued

Site number (fig.1)	U.S. Geological Survey site identification	Site name	Discharge measurement				
			Date	Time	Discharge (gallons per minute)	Method	Data source
AM- 1a	362924116203001	Fairbanks Spring	10-22-2001	--	1,800	F	USFWS
			11-19-2001	--	1,700	F	USFWS
			12-14-2001	1005	1,600	C	EMP
			02-19-2002	1156	1,600	C	EMP
			02-25-2002	1000	1,800	F	USFWS
			03-25-2002	1400	1,800	F	USFWS
			04-16-2002	1100	1,800	F	USFWS
			04-30-2002	0900	1,800	F	USFWS
			05-08-2002	1127	1,500	C	EMP
			06-03-2002	1200	1,800	F	USFWS
			06-26-2002	1000	1,800	F	USFWS
			08-13-2002	1600	1,800	F	USFWS
			09-24-2002	1128	1,600	C	EMP
			10-02-2002	1200	1,800	F	USFWS
			11-22-2002	0920	1,600	C	EMP
AM- 2	362755116190401	Five Springs Well	01-21-2000	0945	52	V	EMP
			02-17-2000	1625	49	V	EMP
			03-14-2000	1200	47	V	EMP
			04-13-2000	0903	46	V	EMP
			05-08-2000	0934	47	V	EMP
			06-08-2000	1210	45	V	EMP
			07-05-2000	1252	45	V	EMP
			08-24-2000	1405	46	V	EMP
			09-18-2000	1457	44	V	EMP
			10-10-2000	1259	46	V	EMP
			11-07-2000	1028	45	V	EMP
			12-07-2000	1203	45	V	EMP
			01-08-2001	1224	44	V	EMP
			02-07-2001	1256	45	V	EMP
			03-20-2001	1525	43	V	EMP
			04-17-2001	1725	40	V	EMP
			05-02-2001	0922	40	V	EMP
			06-21-2001	1218	38	V	EMP
			07-18-2001	0835	39	V	EMP
			08-02-2001	1049	42	V	EMP
			09-10-2001	1007	40	V	EMP
			10-22-2001	1236	41	V	EMP
			11-07-2001	1506	41	V	EMP
			12-10-2001	1315	42	V	EMP
			01-08-2002	1606	39	V	EMP

Table 8. Ground-water-discharge data at monitoring sites in Yucca mountain region, 2000–02—Continued

Site number (fig.1)	U.S. Geological Survey site identification	Site name	Discharge measurement				
			Date	Time	Discharge (gallons per minute)	Method	Data source
AM- 2	362755116190401	Five Springs Well	02-07-2002	1056	39	V	EMP
			03-15-2002	1022	38	V	EMP
			04-22-2002	1522	37	V	EMP
			05-07-2002	1542	38	V	EMP
			06-14-2002	1252	36	V	EMP
			07-04-2002	0830	37	V	EMP
			08-07-2002	1145	35	V	EMP
			09-11-2002	1122	40	V	EMP
			10-25-2002	1322	40	V	EMP
			11-07-2002	0813	42	V	EMP
			12-09-2002	1010	41	V	EMP
AM- 5a	362502116192301	Crystal Pool	01-18-2000	--	3,000	C	USFWS
			03-21-2000	--	2,700	C	USFWS
			03-23-2000	1625	2,800	C	EMP
			06-12-2000	1130	2,900	C	EMP
			06-19-2000	--	3,000	C	USFWS
			07-20-2000	--	2,300	C	USFWS
			08-29-2000	1352	2,700	C	EMP
			09-28-2000	--	2,600	C	USFWS
			11-14-2000	1231	2,600	C	EMP
			11-27-2000	--	3,100	C	USFWS
			01-24-2001	--	2,800	C	USFWS
			02-15-2001	1238	2,900	C	EMP
			03-23-2001	--	2,900	C	USFWS
			06-21-2001	--	2,700	C	USFWS
			06-26-2001	1517	3,200	C	EMP
			08-30-2001	--	2,400	C	USFWS
			08-31-2001	1147	3,000	C	EMP
			10-24-2001	--	2,500	C	USFWS
			12-07-2001	1046	3,300	C	EMP
			02-19-2002	1411	2,800	C	EMP
			03-27-2002	1430	2,600	C	USFWS
			04-16-2002	1245	3,100	C	USFWS
			05-09-2002	0925	3,000	C	EMP
			07-02-2002	0712	3,000	C	USFWS
			09-24-2002	1630	2,500	C	EMP
			10-02-2002	1510	2,600	C	USFWS
			11-14-2002	1041	2,700	C	EMP

Table 8. Ground-water-discharge data at monitoring sites in Yucca mountain region, 2000–02—Continued

Site number (fig.1)	U.S. Geological Survey site identification	Site name	Discharge measurement				
			Date	Time	Discharge (gallons per minute)	Method	Data source
AM- 8	362230116162001	Big Spring	01-24-2000	--	1,100	C	USFWS
			03-21-2000	--	1,000	C	USFWS
			03-31-2000	1112	1,100	C	EMP
			06-20-2000	--	1,000	C	USFWS
			06-29-2000	1925	1,200	C	EMP
			07-19-2000	--	1,100	C	USFWS
			08-30-2000	0920	1,200	C	EMP
			09-27-2000	--	1,200	C	USFWS
			11-14-2000	1432	1,100	C	EMP
			11-27-2000	--	1,300	C	USFWS
			01-23-2001	--	1,200	C	USFWS
			02-15-2001	0759	1,000	C	EMP
			03-23-2001	--	1,100	C	USFWS
			05-30-2001	1726	1,200	C	EMP
			06-25-2001	--	940	C	USFWS
			08-30-2001	--	1,300	C	USFWS
			09-14-2001	1218	990	C	EMP
			10-29-2001	--	830	C	USFWS
			12-07-2001	1321	1,000	C	EMP
			01-22-2002	1533	950	C	USFWS
			02-20-2002	1350	1,000	C	EMP
			03-26-2002	1526	980	C	USFWS
			04-16-2002	1609	1,100	C	USFWS
			05-09-2002	1123	920	C	EMP
			06-28-2002	1000	1,100	C	USFWS
			09-24-2002	1455	980	C	EMP
			10-02-2002	1630	1,000	C	USFWS
			11-19-2002	1332	1,100	C	EMP

Table 8. Ground-water-discharge data at monitoring sites in Yucca mountain region, 2000–02—Continued

Site number (fig.1)	U.S. Geological Survey site identification	Site name	Discharge measurement				
			Date	Time	Discharge (gallons per minute)	Method	Data source
DV- 1	362728116501101	Texas Spring	02-15-2000	--	180	Z	NPS
			03-15-2000	--	180	Z	NPS
			03-30-2000	1238	190	C	EMP
			04-15-2000	--	180	Z	NPS
			05-15-2000	--	180	Z	NPS
			06-15-2000	--	180	Z	NPS
			06-30-2000	0844	210	C	EMP
			09-15-2000	--	190	Z	NPS
			09-25-2000	1332	190	C	EMP
			03-15-2001	--	190	Z	NPS
			03-30-2001	1002	210	C	EMP
			04-15-2001	--	190	Z	NPS
			05-15-2001	--	190	Z	NPS
			05-30-2001	1301	200	C	EMP
			06-15-2001	--	190	Z	NPS
			07-15-2001	--	190	Z	NPS
			08-15-2001	--	200	Z	NPS
			08-30-2001	1254	180	C	EMP
			09-15-2001	--	200	Z	NPS
			10-15-2001	--	200	Z	NPS
			11-15-2001	--	200	Z	NPS
			12-06-2001	1133	200	C	EMP
			12-15-2001	--	200	Z	NPS
			01-15-2002	-	200	Z	NPS
			02-20-2002	1136	200	C	EMP
			05-07-2002	1130	200	C	EMP
			05-15-2002	-	190	Z	NPS
			06-15-2002	-	190	Z	NPS
			07-15-2002	-	190	Z	NPS
			08-06-2002	1350	180	C	EMP
			08-15-2002	-	190	Z	NPS
			09-15-2002	-	190	Z	NPS
			10-15-2002	-	190	Z	NPS
			11-15-2002	-	200	Z	NPS
			11-21-2002	1339	200	C	EMP
			12-15-2002	-	200	Z	NPS

Table 8. Ground-water-discharge data at monitoring sites in Yucca mountain region, 2000–02—Continued

Site number (fig.1)	U.S. Geological Survey site identification	Site name	Discharge measurement				
			Date	Time	Discharge (gallons per minute)	Method	Data source
DV- 2	362252116425301	Navel Spring	03-30-2000	1436	1.1	V	EMP
			06-29-2000	1500	1.0	V	EMP
			09-25-2000	1710	1.0	V	EMP
			12-11-2000	1549	1.0	V	EMP
			02-16-2001	1042	0.98	V	EMP
			05-30-2001	1404	0.96	V	EMP
			08-30-2001	1449	0.93	V	EMP
			12-05-2001	1308	0.92	V	EMP
			02-20-2002	1022	0.92	V	EMP
			05-07-2002	1000	0.93	V	EMP
			08-06-2002	1216	0.89	V	EMP
			11-21-2002	1450	0.92	V	EMP

Table 9. Estimated annual ground-water withdrawals from wells in Yucca Mountain region, 2000–02

Ground-water subbasin (see fig. 1)	Hydrographic area (see fig. 1)	2000		2001		2002	
		Ground-water withdrawal ¹		Ground-water withdrawal ¹		Ground-water withdrawal ¹	
		Millions of gallons	Acre-feet	Millions of gallons	Acre-feet	Millions of gallons	Acre-feet
Alkali Flat-Furnace Creek Ranch	Amargosa Desert ²	4,054	12,441	3,907	11,990	4,025	12,352
Do.	Crater Flat ³	32.1	99	6.4	20	7.2	22
Do.	Jackass Flats ³	29.2	90	36.2	111	17.7	54
Ash Meadows	Amargosa Desert ² (excluding Ash Meadows area)	21	64	19	59	19	59
Do.	Amargosa Desert ² (Ash Meadows area)	6	18	6	19	3	10
Do.	Mercury Valley ³	0.6	2	37.6	115	53.0	163

¹ See text section “Ground-Water Withdrawal Data” for discussion of data sources.

² Data recompiled from ground-water pumpage inventory for entire Amargosa Desert, listed to nearest acre-foot. Domestic use within each part of the Amargosa Desert is based on location and number of wells drilled for domestic purposes (as stored in files maintained by Nevada Division of Water Resources). Conversion to millions of gallons (325,851 gallons per acre-foot) is rounded to nearest 1 million gallons.

³ Data reported or recompiled from flowmeter readings and listed to nearest 0.1 million gallons. Conversions to acre-feet are rounded to nearest acre-foot.

Table 10. Minimum, maximum, and median water-level altitudes, and average deviation of measurements at wells in Jackass Flats for selected baseline periods and for 1992–2002. Excludes water-level altitudes that may reflect short-term conditions at a site

Calendar years: Years for which measurements were used to calculate summary statistics. Italics indicate selected baseline period.

Number: Number of water-level measurements for year(s) specified. For JF-2 (1985-93), JF-2a (1985-97), and JF-3, value represents number of daily average water levels.

Water level: Based on periodic water-level measurements made during site visits for JF-1, JF-2 (after 1993), JF-2a (after 1997), J-13, J-11, and J-12. Based on daily average water levels collected from continual data recorders for JF-2 (1985-93), JF-2a (1985-97), and JF-3.

Minimum: Minimum water-level altitude or minimum daily average water-level altitude for year(s) specified.

Maximum: Maximum water-level altitude or maximum daily average water-level altitude for year(s) specified.

Median: Statistically representative water-level altitude calculated from periodic measurements or daily average water levels for year(s) specified.

Average deviation: Calculated dispersion of measurements about median water-level altitude. Average deviation is equal to sum of absolute differences between measured water levels and median, divided by number of measurements.

Change in median: Differences between median water level for calendar years 1992 through 2002 compared with baseline period. Minus sign indicates that median water-level altitude was lower for the specified year than for the baseline period.

[Abbreviations and symbols: N/A, not applicable (data field is not related to referenced data set); --, transducer installed in site JF-2 which prevented periodic measurement for most of 2002]

Site number (fig. 1)	Calendar year(s)	Number	Water level (feet above sea level)			Average deviation (feet)	Change in median (feet)
			Minimum	Maximum	Median		
JF-1	<i>1985-91</i>	86	2,391.7	2,393.1	2,392.5	0.2	N/A
JF-2	<i>1985-91</i>	1,777	2,389.6	2,393.4	2,392.1	0.3	N/A
JF-2a	<i>1985-91</i>	1,876	2,466.7	2,469.5	2,468.6	0.4	N/A
J-13	<i>1989-91</i>	32	2,389.7	2,390.7	2,390.0	0.2	N/A
J-11	<i>1990-91</i>	25	2,401.9	2,402.9	2,402.2	0.1	N/A
J-12	<i>1990-91</i>	22	2,388.1	2,388.5	2,388.3	0.1	N/A
JF-3	<i>1992-93</i>	582	2,387.7	2,388.8	2,388.3	0.1	N/A
JF-1	2002	16	2,393.0	2,393.4	2,393.2	0.1	0.7
JF-2	2002	1	--	--	--	--	--
JF-2a	2002	16	2,470.5	2,471.3	2,471.0	0.2	2.4
J-13	2002	15	2,390.0	2,390.8	2,390.4	0.1	0.4
J-11	2002	16	2,402.1	2,402.7	2,402.5	0.1	0.3
J-12	2002	16	2,388.4	2,388.8	2,388.6	0.1	0.3
JF-3	2002	314	2,388.1	2,389.0	2,388.6	0.1	0.3
JF-1	2001	18	2,392.8	2,393.3	2,393.0	0.1	0.5
JF-2	2001	18	2,392.4	2,393.2	2,392.8	0.2	0.7
JF-2a	2001	18	2,470.8	2,471.2	2,471.0	0.1	2.4
J-13	2001	17	2,390.1	2,390.9	2,390.4	0.2	0.4
J-11	2001	18	2,402.3	2,403.0	2,402.6	0.2	0.4
J-12	2001	18	2,388.3	2,388.6	2,388.5	0.1	0.2
JF-3	2001	331	2,388.1	2,389.0	2,388.5	0.1	0.2
JF-1	2000	14	2,392.8	2,393.4	2,392.8	0.1	0.3
JF-2	2000	14	2,392.3	2,393.2	2,392.7	0.2	0.6
JF-2a	2000	14	2,470.1	2,471.1	2,470.8	0.3	2.2
J-13	2000	13	2,390.0	2,391.0	2,390.2	0.2	0.2
J-11	2000	14	2,402.3	2,403.2	2,402.3	0.1	0.1
J-12	2000	14	2,387.9	2,388.6	2,388.4	0.1	0.1
JF-3	2000	366	2,387.9	2,388.8	2,388.4	0.1	0.1
JF-1	1999	12	2,392.3	2,393.0	2,392.7	0.1	0.2
JF-2	1999	13	2,392.0	2,392.7	2,392.5	0.1	0.4
JF-2a	1999	13	2,469.8	2,470.4	2,470.2	0.1	1.6
J-13	1999	13	2,389.6	2,390.2	2,390.0	0.1	0.0
J-11	1999	14	2,402.2	2,402.8	2,402.4	0.1	0.2
J-12	1999	12	2,388.1	2,388.5	2,388.3	0.1	0.0
JF-3	1999	365	2,387.6	2,388.6	2,388.2	0.1	-0.1

Table 10. Minimum, maximum, and median water-level altitudes, and average deviation of measurements at wells in Jackass Flats for selected baseline periods and for 1992–2002—Continued

Site number (fig. 1)	Calendar year(s)	Number	Water level (feet above sea level)			Average deviation (feet)	Change in median (feet)
			Minimum	Maximum	Median		
JF-1	1998	22	2,392.3	2,392.8	2,392.5	0.1	0.0
JF-2	1998	21	2,391.8	2,392.6	2,392.1	0.1	0.0
JF-2a	1998	20	2,469.8	2,470.4	2,470.0	0.1	1.4
J-13	1998	20	2,389.4	2,390.2	2,389.8	0.1	-0.2
J-11	1998	20	2,402.2	2,402.9	2,402.6	0.2	0.4
J-12	1998	17	2,387.9	2,388.3	2,388.0	0.1	-0.3
JF-3	1998	316	2,387.6	2,388.6	2,388.0	0.1	-0.3
JF-1	1997	10	2,392.1	2,392.6	2,392.4	0.1	-0.1
JF-2	1997	11	2,391.8	2,392.4	2,392.0	0.1	-0.1
JF-2a	1997	267	2,468.8	2,470.0	2,469.5	0.1	0.9
J-13	1997	11	2,389.5	2,389.9	2,389.6	0.1	-0.4
J-11	1997	10	2,402.2	2,402.8	2,402.6	0.2	0.4
J-12	1997	16	2,387.7	2,388.4	2,388.0	0.1	-0.3
JF-3	1997	345	2,387.4	2,388.8	2,388.0	0.1	-0.3
JF-1	1996	8	2,392.0	2,392.6	2,392.3	0.2	-0.2
JF-2	1996	7	2,391.6	2,392.3	2,392.1	0.2	0.0
JF-2a	1996	214	2,468.6	2,469.6	2,469.3	0.1	0.7
J-13	1996	8	2,389.2	2,389.9	2,389.6	0.1	-0.4
J-11	1996	8	2,402.2	2,402.6	2,402.4	0.1	0.2
J-12	1996	18	2,387.5	2,388.5	2,388.0	0.1	-0.3
JF-3	1996	359	2,387.5	2,388.5	2,388.0	0.1	-0.3
JF-1	1995	7	2,392.3	2,392.8	2,392.5	0.2	0.0
JF-2	1995	9	2,392.2	2,392.5	2,392.4	0.1	0.3
JF-2a	1995	357	2,468.7	2,469.3	2,469.1	0.1	0.5
J-13	1995	11	2,389.6	2,390.4	2,389.8	0.1	-0.2
J-11	1995	11	2,402.2	2,402.5	2,402.4	0.1	0.2
J-12	1995	16	2,388.0	2,388.3	2,388.2	0.1	-0.1
JF-3	1995	347	2,387.7	2,388.4	2,388.1	0.1	-0.2
JF-1	1994	12	2,392.1	2,392.6	2,392.3	0.1	-0.2
JF-2	1994	9	2,392.0	2,392.6	2,392.2	0.1	0.1
JF-2a	1994	356	2,468.4	2,469.4	2,469.0	0.1	0.4
J-13	1994	23	2,389.4	2,390.0	2,389.7	0.1	-0.3
J-11	1994	12	2,402.0	2,402.5	2,402.3	0.1	0.1
J-12	1994	24	2,387.8	2,389.1	2,388.2	0.2	-0.1
JF-3	1994	284	2,387.6	2,388.6	2,388.1	0.1	-0.2
JF-1	1993	8	2,391.9	2,392.7	2,392.5	0.2	0.0
JF-2	1993	362	2,391.7	2,392.8	2,392.1	0.2	0.0
JF-2a	1993	365	2,468.4	2,469.2	2,468.8	0.1	0.2
J-13	1993	16	2,389.7	2,390.7	2,389.9	0.1	-0.1
J-11	1993	8	2,401.9	2,402.7	2,402.2	0.2	0.0
J-12	1993	19	2,387.9	2,389.0	2,388.3	0.1	0.0
JF-1	1992	12	2,392.3	2,392.6	2,392.4	0.1	-0.1
JF-2	1992	357	2,391.8	2,392.6	2,392.2	0.1	0.1
JF-2a	1992	342	2,466.9	2,469.2	2,468.6	0.5	0.0
J-13	1992	21	2,389.6	2,390.4	2,389.9	0.1	-0.1
J-11	1992	12	2,402.0	2,402.6	2,402.2	0.1	0.0
J-12	1992	17	2,388.2	2,388.6	2,388.3	0.1	0.0



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